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Verkadu: A Study of a Backward Agricultural Village in Tamil Nadu

by

V. Chandrasekara Naidu

MADRAS INSTITUTE OF DEVELOPMENT STUDIES
79, SECOND MAIN ROAD, GANDHI NAGAR, ADYAR
MADRAS 600 020

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79, Second Main Road, Gandhinagar,
Adyar, Madras 600 020

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Chapter I

Introduction

Location of the Village

Verkadu is a small revenue village located in the Gummidipundi taluk of Chengalpattu-MGR district, Tamil Nadu. The village is situated about 45 kilometres (kms) north of Madras City, the state capital and 3 kms east of Gummidipundi town (for locational details, see the map). The settlement pattern of the village consists of caste quarters and scheduled caste (SC) colony separately for each of the categories. But the latter is contigous to the former. In addition to SC colony, Verkadu has two other hamlets inhabited by the caste population. They are: Nangopallam and Kuruvattucheri. By the mid-80's, the village acquired the necessary infrastructural facilities like education, communication, transport and electricity. Further, the village is well-connected to the city of Madras and neighbouring towns, both by road and rail.

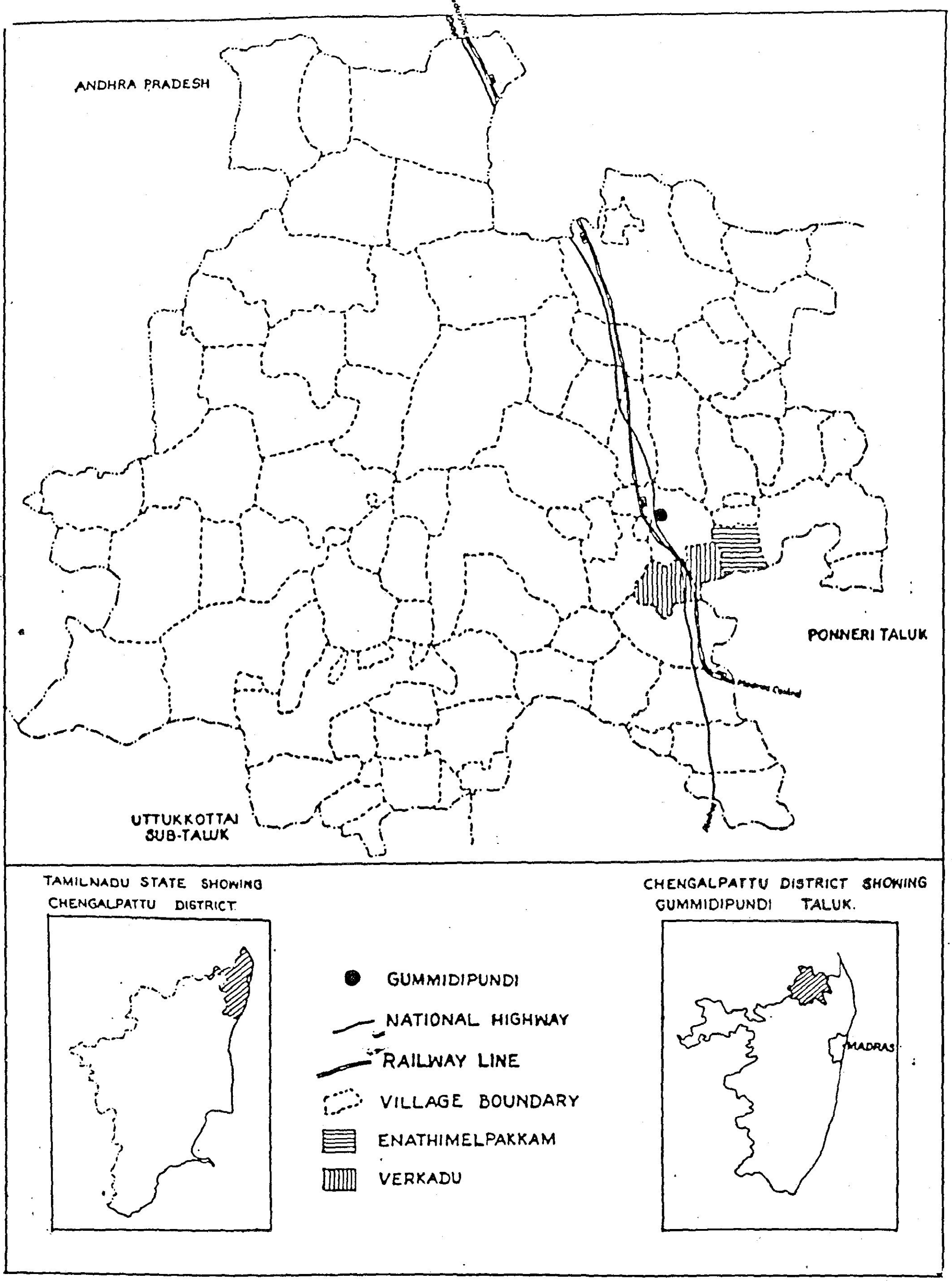
Some of the Unique Features of the Village

For a long time the village has been dominated by the upper caste population especially by the Naickers. This particular caste group alone accounted for about half of the total population of the village in 1985-86. The SC population never exceeded 15 per cent of the total village population. These are contrary to the proportions of SC and Naicker caste populations in the total population of the district where they respectively,

accounted for about one-fourth and one-fifth in 1981.[1] But as against the land ownership being dominated by the Naicker caste in many villages of Chengalpattu district[2] the land ownership in Verkadu was dominated by the Mudaliar caste. In addition, the village over the years came to have a high proportion (about two-thirds) of land owned by the non-residents.

There was also a nexus observed between caste and occupation in the village. While many of the owner cultivators belonged to Mudaliar caste and to some extent to the naicker caste the pure tenants largely belonged to the Reddy caste. Further, whereas agricultural labourers were largely drawn from the SCs non-agricultural workers were largely drawn from the upper castes, especially from the Naickers. In fact, the Naicker (also called Vanniars in the state) caste group has been agitating for some time in the state for higher job reservation in the government for its people.[3] However, the nexus between caste and occupation observed in the village came in the way of obtaining benefits from the government. The sharply divided village population on caste and occupational basis could not make any unified approaches to the government to implement either agricultural or household development programmes in the village. Even the individual caste groups such as the SCs could not obtain any benefits from the government although some neighbouring villages have taken advantage of specific low caste and target-oriented programmes (such as the provision of housing and the distribution of livestock among the SC agricultural labourers).

MAP SHOWING THE LOCATION OF SURVEYED VILLAGES IN GUMMIDIPUNDI TALUK



Agriculturally, the village came to have a unique pattern of cultivation. Verkadu was one of the few villages in the district and the state which remained untouched by the innovations introduced in Tamil Nadu agriculture, especially after the mid-sixties.[4] This situation was brought about mainly by the inadequate irrigation facilities and the low fertility of soils. The village even in the mid-80s was cultivating its major crop of traditional varieties of paddy based on broadcasting (of seed) method. Its agriculture was not mechanised. Crop production was done mainly depending on tank irrigation supplemented by ettram irrigation of pond water. As a consequence of all these, the traditional pattern of agriculture had released a part of its male agricultural labour force for non-agricultural occupations, available especially outside the village. Hence diversification of the village economy continued to take place right from the early 70s. But the traditional pattern of agriculture in the village was carried on depending on the reserves of hired labour available both within and outside the village. The small surplus incomes generated both within agriculture and outside had been very much invested on unproductive activities such as house construction and money-lending. Another very striking feature of the village was the large number of its non-agricultural workers (54 out of 60) working outside the village even while residing in the village. Hence the village economy was gradually integrating itself into the wider economy for its development.

Methodology

The required information for the study came from three types of surveys conducted in Verkadu village in 1986-87. They are: a) Census, b) Sample and c) Purposive sampling enquiries. While the random sample survey covered 65 households in the vilage the purposive sampling enquiry covered 10 elderly persons knowledgeable about the agro-economic development in it (village) during the last 15 years (1970-71 to 1985-86).

Whereas the census survey aimed at the collection of data on population and workforce, land and livestock ownerships among the households, tenancy and major sources of incomes to the households, the sample survey aimed at the collection of data on costs and returns from agriculture, production and productivity, labour utilisation in traditional agriculture, different sources of incomes to the households in 1985-86, credit and the utilisation of common property resources (CPRs) and the public programmes implemented in the village during the last 10 years. The purposive sampling enquiry was conducted mainly to understand the various aspects of village development during the last 20 years (1965 to 1985).

First, with the help of census data we were able to stratify the households based on their 'major source of income'. In the case of those households which reported "cultivation" as their major income-earning occupation, we further stratified them based on the 'size of their land ownership' in 1985-86. As per these two criteria, the sample households in the village were divided into 9 major occupational categories for the collection of data

and analysis. They are: 1) big farmers (those who own 10 acres and above); 2) medium famers (owning 5.01 to 9.99 acres); 3) Small farmers (owning between 2.51 and 5.00 acres); 4) Marginal farmers (owning up to 2.50 acres); 5) Tenants; 6) Agricultural labourers; 7) Non-agricultural workers with regular salaried employment; 8) Non-agricultural casual workers; and 9) Artisanal and service households.

For collecting the data on dynamic aspects of the village economy in general, and agricultural development in particular, we selected the reference period of 1970-71 to 1985-86. The data on current socio-economic conditions of the households are collected during the reference year (agricultural year) of 1985-86. The unit of analysis is the "household" rather than an individual in it. The information relating to the year 1970-71 has been obtained from the unpublished village records, Census publications and the purposive sampling enquiries conducted with the knowledgeable persons in the village.

We administered separate schedules to the census and sample households for the collection of data. These schedules were finalised only after pre-testing them in the selected villages. The purposive sampling enquiry was conducted based on long oral discussions rather than by administering any questionnaires to the respondents.

Judging by the quantum of rainfall received by the district of Chengalpattu-MGR in which the village is located, our reference year of 1985-86 turns out to be a normal agricultural year. In fact, the district received more than 50 per cent of

its average annual rainfall in 1985-86. And, even in the previous year of 1984-85 while the state received only 791 mms the district of Chengalpattu-MGR (then called as Chengalpattu district) received its usual average rainfall of 1200 mms. Further, the data available on the gross cropped area of the village justifies the normality of the reference year chosen for the purpose of our field enquiry.

In addition to the field enquiries relevant information has also been gathered from published and unpublished sources. Some of the important secondary sources consulted are: 1) the Census publications of the government of India relating to the years of 1961,1971 and 1981; 2) the taluk livestock Census Registers; 3) the block level administration records relating to the implementation of target and household-beneficiary programmes in the village; 4) the tank irrigation records of the PUblic Works Department (PWD) and 5) the village records such as a) the Settleemnt Register; b) 10-1-Chitta and c) Adangal.

Chapter II

Demographic, Social and Occupational Structure of the Village

In a traditional agricultural village like Verkadu the demographic, social and occuational factors play a crucial role in determining the economic conditions of the weaker sections. As has already been said the village is dominated by the upper castes both demographically and economically. In the taluk of Gummidipundi, Verkadu is one of the few villages which has a low proportion of low caste (SC and ST) population. But, in compaison to the taluk Verkadu's literacy levels are always higher and they increased substantially in the 80's thanks to the introduction of noon-meal scheme in 1982. And the high levels of literacy enabled the workers of Verkadu to take greater advantage of employment opportunities available in the neighbourhoods.

The data on some of the demographic aspects of the village and the taluk are provided in Table 1. As the table shows there were 627 persons living in 128 households in the village in 1986. And as has already been stated the low caste population (i.e., the SCs and scheduled tribes put together) accounted only for 14.04 per cent of the total population even in the mid-80s. This was far less than the percentages of SC and scheduled tribe population in the total populations of the taluk (27.57) and the district[5] (27.48) in 1981. Thus the village had the large proportion of total population belonging to the upper castes. Table 2 shows that even among the 7 upper castes, Naicker caste dominated the demographic scene of the village in 1986. This particular caste group alone accounted for about half (48.96 per

Table 1 Changes in Demography and Literacy Levels Between 1961 and 1986 in Verkadu Village and Gummidipundi Taluk

	Village				Taluk	
	1961	1971	1981	1986	1971	1981
1. Number of households	99	113	136	128	21398	25814
2. Population:						
a) Total	446	527	617	627	103232	122613
b) Males	229	278	319	315	53219	62263
c) Females	217	249	298	312	50013	60350
3. Total number of literates	146	179	250	374	28298	39032
a) Males	112	118	166	219	20776	27193
b) Females	34	61	84	155	7522	11839
4. Percentage of literates to total population	32.73	33.96	40.52	59.65	27.41	31.83
5. Scheduled caste population	29	32	89	83	24936	30819
6. Percentage of scheduled caste population to the total population	6.50	6.07	14.42	13.24	24.15	25.14
7. Scheduled tribe population	-	19	11	5	2251	2978
8. Percentage of scheduled tribe population to the total population	-	3.60	1.78	0.80	2.18	2.43
9. Sex-ratio	947.60	895.68	934.17	990.48	939.76	969.27
10. Percentage change of total population from the previous year	-	18.16	17.07	1.62	-	18.7

Sources: 1) Census of India, 1961, Volume IX, Madras, Part X-VI, District Census Handbook, Chingleput, Volume II. 2)
2) Census of India, 1971, Series-19, Tamil Nadu, Part X-B, District Census Handbook, Village and Town-wise Priamry Census Abstract, Chingleput, Volume I.
3) Census of India, 1981, Series-20, Tamil Nadu, District Census Handbook, Part XIII-B, Village and Town-wise Priamry Census Abstract, Chengalpattu District.
4) Data for 1986 are from field surveys (census).

Table 2 Caste and Demography in Verkadu in 1985-86

Caste group	Number of house-holds	Number of persons	Average family size	Number of earners	Number of dependents	Earner-dependent ratio	Number of agricul-tural labourers	Number of non-agri-cultural workers	Number of literates per house hold
1. Mudaliars	13	86	6.61	39	47	0.83	-	6	5.23
2. Naickers	62	307	4.95	219	88	2.49	23	33	3.03
3. Reddy	18	79	4.39	34	45	0.75	4	5	1.83
4. Pillai	8	43	5.37	17	26	0.65	2	5	2.37
5. Nadar	1	6	6.00	2	4	0.50	-	1	5.00
6. Dhobi	3	14	4.67	9	5	1.80	-	3	3.00
7. Barber	1	4	4.00	3	1	3.00	-	1	2.00
8. Scheduled castes	20	83	4.15	45	38	1.18	26	6	2.35
9. Scheduled tribes	2	5	2.50	3	2	1.50	3	-	1.00
Total	128	627	4.90	371	256	1.45	58	60	2.92

Source: Field survey (census).

cent) of the total population of the village. This was far higher compared to only about one-fifth of the total population in the district belonging to this caste in the early 80s. Hence the caste composition of the population in the village was at variance with the same observed at the taluk and the district levels.

The calculations based on the data provided by Table 1 revealed that while the simple annual rate of growth of population in the village between 1971 and 1986 worked out to 1.26 per cent the same at the taluk level between 1971 and 1981 worked out to 1.88 per cent. Thus the annual rate of growth of population in the village was far lower in comparison to the taluk. And this situation was brought about mainly in the early 80s. The field enquiries conducted in the village revealed that as against 5 households consisting of 20 to 30 persons joining the village in the seventies 13 households consisting of 60 to 70 persons had left the village in search of some non-agricultural occupations available outside the village in the early 80s. The out-migrated households accounted for about 10 per cent of the village population in the 80s. And this largely explained the lower rate of growth of population observed in the village.

The household level demographic data are provided in Table 2. The table reveals an average family size of 4.90 and an earner-dependent ratio[6] (earners/dependents) of 1.45. The village had a higher average family size in comparison to the same at the state level (4.61) in 1981.[7] Thus the village over the years developed largely under unfavourable demographic and

social conditions that prevailed there. The only advantage that the village enjoyed was with respect to its higher level of literacy (shown in Table 1), (59.65 per cent in 1986) in comparison to the same at the taluk (31.83 per cent in 1981) and the district (48 per cent in 1981) levels. And there was no graduate in the village even in the mid-80s. Further, Table 1 shows that Verkadu witnessed a rapid increase in its literacy level by 49.6 per cent between 1981 and 1986. This was made possible by the introduction of noon-meal scheme[8] in 1982 which increased the enrolment of students in the schools.[9] The same also explains the jump in female literacy level in the village between 1981 and 1986. In fact, there were two schools functioning with 5 teachers in the village which had hardly a total population of 627 in the mid-80s. However, the higher level of literacy achieved in the village had implications for the diversification of its economy to which we will return later in the chapter.

Since the demographic factors such as the low average family sizes and the high earner-dependent ratios facilitated the earning of incomes we need to analyse the data at the household level too. The same are presented in Table 3. The table shows that while the average family size varied from a minimum of 3.56 in the case of agricultural labourers to a maximum of 7.67 among the big farmers the earner-dependent ratio varied from a minimum of 0.85 in the case of marginal farmers to a maximum of 2.41 among the small farmers in 1985-86. The table also reveals that whereas the artisanal and service households and the pure tenants

Table 3 Demographic Characteristics by Occupational Categories in Verkadu in 1985-86

Category of households	Number of households	Number of persons	Average family size	Number of earners	Number of dependents	Earner-dependent ratio	Average number of literates per household
1. Big farmers	6	46	7.67	26	20	1.30	6.00
2. Medium farmers	9	59	6.55	33	26	1.27	4.56
3. Small farmers	9	58	6.44	41	17	2.41	3.00
4. Marginal farmers	9	37	4.11	17	20	0.85	2.89
5. Pure tenants	13	59	4.54	38	21	1.81	2.15
6. Agricultural labourers	23	82	3.56	48	34	1.41	1.43
7. Non-agricultural workers with regular salaried employment	14	84	6.00	49	35	1.40	3.43
8. Non-agricultural casual workers	41	184	4.49	108	76	1.42	3.02
9. Artisanal and services households	4	18	4.50	11	7	1.57	2.75
Total	128	627	4.90	371	256	1.45	2.14

Source: Field survey (census).

benefited from both the favourable demographic factors of lower average family sizes and higher earner-dependent ratios the big and medium farmers and the non-agricultural workers with regular salaried employment suffered from both the larger average family sizes and lower earner-dependent ratios. The categories other than these such as the small and marginal farmers, agricultural labourers experienced both the favourable (lower average family sizes) and unfavourable (lower earner-dependent ratios) demographic factors working on them. However, the demogrphic patterns observed among the different categories of households had implications for the incomes earned by them which we will take up for analysis later.

Occupational changes and workforce

Our census survey of households on occupational changes in the village between 1970-71 and 1985-86 revealed the participation of 45 out of 128 households. They accounted for more than one-third (35.15 per cent) of the total households in the village in 1985-86. Hence the occupational mobility among the households was quite high. The occupational changes according to caste are presented in Table 4. As has already been stated the demographically dominant and the outward-looking Naicker caste alone accounted for more than half (24 out of 45 households) the total number of occupational changes that took place in the village during the last 15 years. As against this, the SCs accounted for a mere 7. Thus, occupational mobility was higher among the upper castes (involving 38 out of 45 households)

Table 4 Occupational Changes by Different Caste Groups of Households in Verkadu Between 1970-71 and 1985-86

Occupational change		No. of H.Hs which changed their major occupation in the caste group of					
From	To	Muda-liars	Naic-kers	Reddys	SCs	Others	Total
1) Agricultural labour	Non agricultural casual worker	--	10	--	2	--	12
2) "	Non agricultural regular salaried employment	--	3	2	4	--	9
3) "	Tenant	--	--	1	--	--	1
4) Owner Cultivator	Non agricultural casual worker	4	7	--	--	--	11
5) "	Non agricultural regular salaried employment	2	--	--	--	--	2
6) "	Tenant	--	2	3	--	--	5
7) "	Agricultural labour	--	--	1	--	--	1
8) Tenant cultivator	"	--	1	--	--	--	1
9) Non agricultural regular salaried employment	owner cultivator	1	1	--	--	--	2
10) Non agricultural casual worker	Agricultural labour	--	--	--	1	--	1
Total	--	7	24	7	7	--	45

Note: No: Number; H.Hs: Households.
Source: Field survey (census).

rather than among the lower castes.

The table also shows that many of the occupational changes took place from agriculture to non-agricultural sectors. Totally, 21 out of 22 agricultural labourers and 13 out of 19 owner-cultivators were involved in the change of their original agricultural occupation in favour of non-agricultural occupations, available especially outside the village. Thus the dominant change had been from agriculture to non-agricultural occupations (involving 34 out of 45 households) over the years. Hence this resulted in the gradual diversification of the village economy in the 70s and the early 80s. The occupational status of the households in the mid-80s (in Table 3) revealed that 42.97 per cent of (55 out of 128 households) the total households derived their major source of income (excluding artisanal and service households) from non-agricultural occupations available outside the village. This shows the extent of influence that the external economy exerted on the development of the village economy over the years.

Now let us examine the implications of occupational changes for the workforce in the village. The relevant data are presented in Table 5. As the table shows in comparison to the rural taluk[10] (Gummidipundi taluk continued to have only the rural population even upto 1981) the village had a lower proportion of agricultural workers and a higher proportion of non-agricultural workers in its total workforce of 1985-86. But, within the village, even in the mid-80s about 70 per cent of the

Table 5 Changes in the Composition of Workforce in Verkadu and Gummidipundi Taluk between 1961 and 1986

Category of workers	Village				Taluk	
	1961	1971	1981	1986	1971	1981
1. Total population	446	527	617	627	103232	122613
2. Total workers	201	186	193	184	37733	47127
3. Total cultivators:	133	67	94	66	14322	17138
a) Males	88	62	94	53	13047	14613
b) Females	45	5	--	13	1275	2525
4. Total agricultural labourers:	34	98	47	58	14242	18023
a) Males	22	73	47	27	10045	10571
b) Females	12	25	--	31	4197	7452
5. Total non-agricultural workers	34	21	52	60	9169	11966
6. Percentage of total workers to total population	45.07	35.29	31.28	29.35	36.55	38.43
7. Percentage of agricultural workers to total workers	83.08	88.71	73.06	67.39	75.70	74.60
8. Percentage of non agricultural workers to total workers	16.92	11.29	26.94	32.61	24.30	25.39
9. Percentage of cultivators to total workers	66.17	36.02	48.70	35.87	37.96	36.36
10. Percentage of agricultural labourers to total workers	16.92	52.69	24.35	31.52	37.74	38.24
11. Total number of non-workers	245	341	424 (including marginal workers)	443	65499	75486
12. Percentage of non-workers to the total population	54.93	64.71	68.72	70.65	63.45	61.56

Sources: 1) Census of India, 1961, Volume IX, Madras, Part X-VI, District Census Handbook, Chingleput, Volume II.
2) Census of India, 1971, Series-19, Tamil Nadu, Part X-B, District Census Handbook, Village and Town-wise Primary Census Abstract, Chingleput, Volume I.
3) Census of India 1981, Series-20, Tamil Nadu, District Census Handbook, Part XIII-B, Village and Town-wise Priamry Census Abstract, Chinglepattu District.
4) Data for 1986 are from field survey (census).

total workforce was still engaged in agriculture. However, the shift from agriculture to non-agricultural occupations was mainly brought about by the male workers. The table shows considerable declines in the numbers of male agricultural labourers (mainly between 1971 and 1981) and cultivators (mainly between 1981 and 1986) in the village over the years. And this was to some extent compensated by small increases in the numbers of female cultivators and agricultural labourers in the village between 1971 and 1981. The substantial decline observed in the number of male cultivators included the cultivators who lost their land ownerships in the village and out-migrated during the last 15 years. However, the table indicates that the change of occupations among the cultivators largely came after the change of occupations among the agricultural labourers. This shows that the landless always looked for better sources of employment and incomes outside the village. The same phenomenon had also been observed in the rural economy of Tamil Nadu by the National Sample Surveys[11] (NSS) between 1972-73 and 1983. According to the NSS there had been a significant decline (by about 13 percentage points) observed in the male agricultural workforce with a corresponding increase in the male non-agricultural workforce in the state over the years. In fact, Tamil Nadu was identified as one of the few states in the country which had experienced significant occupational shifts during the recent years from agriculture to non-agricultural sectors.[12] Perhaps Verkadu-type of villages may explain the macro level processes observed in this regard. In this connection it is worth pointing

out that the studies conducted in some of the backward agricultural villages of Tamil Nadu and elsewhere have also observed the greater diversification of occupations in them.[13]

The caste distribution of workforce in the village (in Table 2) in 1985-86 revealed that while half the number (29 out of 58) of agricultural labourers were drawn from the low castes larger number of non-agricultural workers were (54 out of 60) drawn from the upper castes. Thus the high wage paid non-agricultural employment was monopolised by the upper castes rather than by the lower castes. And its implications for the incomes earned by different categories of households will be analysed later.

Chapter III

Land and Livestock Ownership and Tenancy

Land and livestock ownerships are essential for the agricultural households to earn reasonable levels of incomes within their own village. In the absence of agricultural mechanisation the livestock ownerships become even more important for the households to carry on their cultivation activities. Such livestock ownemrships not only provided the households with the draught animal labour power but also supplemented their (households) incomes by hiring out their services to others. In fact, the availability of draught animal labour power facilitated a few households in the village to lease in considerable extents of lands on a long term basis.

In this chapter we tried to analyse the changes brought about in land and livestock ownerships between 1970-71 and 1985 - 86. This kind of an analysis had helped us to identify the major beneficiaries of changes in land ownerships during the last 15 years in the village. In addition, we also analysed the changes brought about in tenancy over the years. Further, the village level data on land and livestock ownmerships and tenancy have been profitably compared with the data available on the same at the taluk, district and the state levels. Such comparisons helped us to place the village economy and its development in its proper perspective.

Land utilisation

The information on land utilisation in the village in 1971 and 1981 is presented in Table 6. It shows the total area of

Table 6 **Changes in Land Utilisation Pattern of Verkadu between 1971 and 1981**

Type of land	Extent (in acres)		Absolute change over the years
	1971	1981	
1. Irrigated	360.62	360.64	+ 0.02
2. Unirrigated	288.99	314.13	+ 25.14
3. Culturable waste	22.23	57.25	+ 35.02
4. Not available for cultivation	276.64	220.57	- 56.07
5. Forests	--	--	--
Total	948.48	952.59	+ 4.11

Sources: 1) Census of India, 1971, Series-19, Tamil Nadu, Part X-A, District Census Handbook, Village and Town Directory, Chingleput District.
2) Census of India, 1981, Series-20, Tamil Nadu, Part XIII-A, District Census Handbook, Village and Town Directory, Chengalpattu District.

the village as 952.59 acres in 1981. Out of this total area while 674.77 acres were cultivated 277.82 acres remained uncultivated. The village had a considerable extent of unculturable waste land which had more than doubled between 1971 and 1981. This was brought about by the reclassification of land use pattern between the contiguous villages during this period. However, the area not available for cultivation had declined over the years. The village had quite a high proportion (46.55 per cent) of total cultivated area as unirrigated. It has no area under forests. Some other land resources which the village possessed in the mid-80s include 9 ponds and a few palm groves. They provided considerable incomes from the sales of fish, fruits and roofing materials. Hence the households of the village had enough scope for earning incomes from the utilisation of these common property resources.

Changes in land ownership and distribution

Out of the total owned area of 674.77 acres in 1985-86 while the residents owned 226.33 acres (33.54 per cent) the non-residents owned 418.44 acres (62.01 per cent). The remaining 30 acres (4.45 per cent) were owned by the temples. And the total extent of land owned by the non-residents included both their inherited and purchased (largely in the 1950s) lands in the village. However, there was no holding exceeding 20 acres in 1985.86.

The changes in the distribution of land ownership across

categories between 1970-71 and 1985-86 are presented in Table 7 (for the procedures of data collection on land transfers, see Appendix-I). The table reveals that between these two years both the number of households owning land and the total extent of area owned by them declined. The process of increased landlessness in the village was also accompanied by a net transfer of 27.63 acres of land from the residents to the non-residents. Across the categories while the big farmers increased their land ownerships significantly by 73.24 per cent between 1970-71 and 1985-86 all other categories with the exception of artisanal and service households had lost some of their lands. Among the categories which lost their land ownerships the medium and marginal farmers and the pure tenants who once owned the lands in the village experienced the most. The calculations of Gini coefficients[14] for the concentrations of owned land among the resident households in 1970-71 and 1985-86 revealed an increase from 0.5066 to 0.5512. But the concentration of land ownership observed at the village level in either of the years was far lower compared to the state level concentration of land ownership[15] in 1971-72 and 1982 where Gini coefficients showed 0.64 and 0.62 respectively. However, the landlessness in the village had gone up considerably from 33.62 per cent in 1970-71 to 53.12 per cent of total households in 1985-86. And these are far higher compared to the percentages of the landless among the total rural households in the state in 1971-72 (17.01 per cent) and 1981-82[16] (19.13 per cent). Thus, while the high concentration of land ownership in the state was associated with

Table 7 Changes in the Distribution of Land Ownership by Occupational Category in Verkadu between 1970-71 and 1985-86

Category of households according to the present status	Number of households owning land in 1970-71	Area owned (in acres) in 1970-71	As percentage to the total	Extent of area purchased between 1970-71 & 1985-86 (in acres)	Extent of area sold between 1970-71 & 1985-86 (in acres)	Number of households owning land in 1985-86	Area owned in 1985-86 (in acres)	As percentage to the total	Net addition (+) or deletion (-) to the initial land ownership (in acres)
1. Big Farmers	4	48.65	19.16	37.13	1.50	6	84.28	37.24	+ 35.63
2. Medium Farmers	15	80.36	31.64	13.65	32.20	9	61.81	27.31	- 18.55
3. Small Farmers	11	36.13	14.23	14.27	18.68	9	31.72	14.01	- 4.41
4. Marginal Farmers	19	30.89	12.16	3.34	19.64	9	14.59	6.45	- 16.30
5. Pure Tenants	6	20.60	8.11	3.47	18.00	7	6.07	2.68	- 14.53
6. Agricultural labourers	3	1.00	0.39	0.19	0.67	2	0.52	0.23	- 0.48
7. Non-agricultural workers with regular salaried employment	13	29.05	11.44	6.00	14.55	10	20.50	9.06	- 8.55
8. Non-agricultural casual workers	2	4.78	1.88	1.39	1.83	6	4.34	1.92	- 0.44
9. Artisanal and service households	2	2.50	0.98	1.50	1.50	2	2.50	1.10	—
Total	75	253.96	100.00	80.94	108.57	60	226.33	100.00	- 27.63

Sources: 1) 10-1-Chitta.
2) Adangal of the village for the faslis 1381 and 1396 relating to the years of 1970-71 and 1985-86.
3) Data for 1985-86 are from field survey (census).

the low level of landlessness the low concentration of land ownership in the village was associated with the high level of landlessness.

However, the factors associated with the increased concentration of land ownership and the landlessness in the village need to be identified. The extents of land owned by the big farmers had gone up between 1970-71 and 1985-86 mainly by the purchases of lands from those who belonged to their caste. In the process 2 new holdings had also been added to the big farmers' category. While the 2 new big farmers bought lands by direct purchases with the help of their retirement benefits earned from the defence service and the railways the other 4 big farmers bought lands again by direct purchases with the help of their surplus incomes earned both from agricultural and non-agricultural (mainly money-lending and civil contracts) activities. In addition to what they bought within the village they also bought 10 acres of land in one of the neighbouring agriculturally advanced village which they had leased out to the non-resident tenants. However, we did not come across any land transaction done with the prior mortgage or credit. Some other factors which helped the land acquisition process of the big farmers were the out-migration of the same caste land owners who sold away their lands to them and the lower prices of agricultural land which prevailed in the village. As against the prices of agricultural land in some of the neighbouring villages going up by 10 times from Rs.3,000 to 30,000 per acre between 1970-71 and 1985-86 the same in Verkadu had gone up only by 5

times from Rs.3,000 to Rs.15,000 per acre during the same period.

Some of the important factors associated with the increased landlessness and the sale of small extents of lands by the remaining land owners in the village were the following. Most of the lands were sold in connection with the securing of regular salaried employment both by the out-migrant households and the remaining land owning households. Another factor mentioned in the village was the increased indebtedness of the households consequent to their huge expenditures incurred on social ceremonies such as marriages. Thus social, economic and non-agricultural factors were very much behind the land acquisition and dispossession processes which worked in the village. It is also important to note that the non-agricultural factors played a significant role in effecting both the sales and purchases of lands in the village.

Land operation and tenancy

Table 8 provides the information on the extents of operated areas (land owned + leased in land minus leased out land) and tenancy across the categories in the village in 1985-86. The table shows that while the number of cultivating households not owning land declined considerably by one-fifth (75 to 60) the number of households operating land had, in fact, remained the same. This only indicated the substitution of owned land by the leased in lands for cultivation. But the total extent of operated area declined from 313.81 acres in 1970-71 to

Table 8 Categorywise Changes in Land Ownership, Operation, Leasing in and Leasing out in Verkadu between 1970-71 and 1985-86

(Extent in acres)

Category of households according to present status	1970-71						
	No. of H.Hs owning land	Extent owned	No. of H.Hs leasing in	Extent leased in	No. of H.Hs leasing out	Extent leased out	No. of H.Hs operating land
1. Big farmers	4	48.65	1	5.00	--	--	4
2. Medium farmers	15	80.36	1	3.15	--	--	15
3. Small farmers	11	36.13	4	14.50	--	--	11
4. Marginal farmers	19	30.89	--	--	--	--	19
5. Pure tenants	6	20.60	4	16.00	--	--	6
6. Agricultural labourers	3	1.00	2	7.00	--	--	3
7. Non-agricultural workers with regular salaried employment	13	29.05	3	12.20	--	--	13
8. Non-agricultural casual workers	2	4.78	--	--	--	--	2
9. Artisanal and service households	2	2.50	1	2.00	--	--	3
Total	75	253.96	16	59.85	--	--	76

Note: No. Number; H.Hs: Households.

(Table continues on the following page)

Table 8 (continued).

(Extent in acres)

Category of households according to present status	1985-86								
	Extent operated	No. of H.Hs owning land	Extent owned	No. of H.Hs leasing in	Extent leased in	No. of H.Hs leasing out	Extent leased out	No. of H.Hs operating land	Extent operated
1. Big farmers	53.65	6	84.28	--	--	2	15.38	6	68.90
2. Medium farmers	83.51	9	61.81	2	3.43	1	6.04	9	59.20
3. Small farmers	50.63	9	31.72	5	11.36	1	5.00	8	38.08
4. Marginal farmers	30.89	9	14.59	6	3.62	--	--	9	18.21
5. Pure tenants	36.60	7	6.07	13	50.89	--	--	13	56.96
6. Agricultural labourers	8.00	2	0.52	10	15.97	--	--	12	16.49
7. Non-agricultural workers with regular salaried employment	41.25	10	20.50	4	5.20	--	--	10	25.70
8. Non-agricultural casual workers	4.78	6	4.34	8	3.90	--	--	8	8.24
9. Artisanal and service households	4.50	2	2.50	1	0.40	--	--	2	2.90
Total	313.81	60	226.33	49	94.77	4	26.42	77	294.68

Sources: 1) 10-1 Chitta and Adangal of the village for the faslis 1381 and 1396 relating to the years of 1970-71 and 1985-86.
2) Data for 1970-71 are from the field survey (purposive sample).
3) Data for 1985-86 are from field surveys (Census and sample).

294.68 acres in 1985-86. And this was brought about mainly by the net sales of lands by the residents to the non-residents who cultivated those lands on their own. Within the village both the number of households leasing in and the total area leased in by them had gone up substantially between 1970-71 and 1985-86. In relative terms, 14.16 per cent of the total households leased in 23.57 per cent of the total area (owned by the residents) in 1970-71 whereas 38.28 per cent of the total households leased in 41.87 per cent of the total area in 1985-86. Thus there was a substantial increase in tenancy both in absolute and relative terms in the village over the years.

The increased tenancy observed in the village was against the stagnation observed in the same for rural Tamil Nadu between 1971 and 1981-82 according to the NSS data. At the state level while the percentage of total households leased in declined marginally from 31.16 to 29.22 the percentage of total area leased in declined negligibily from 13.99 to 13.39.[17] However, the marked increase observed in the area under tenancy in the village was also associated with an increased concentration of operated area between 1970-71 and 1985-86. The Gini coefficients calculated for this purpose revealed 0.3071 in 1970-71 and 0.4756 in 1985-86. But the concentration of operated area was still lower in comparison to the concentration of owned area in the village in 1985-86.

Some of the factors which accounted for the increased tenancy in the village are the following. 1) The significant loss of owned land, especially by the pure tenants and others,

compelled them to lease in lands for cultivation. 2) A high proportion of total land owned by the non-residents necessitated a few of them to lease out their lands to the residents for want of direct cultivation even on a semi-permanent basis. 3) The continued traditional pattern of cultivation without any mechanisation had forced a few of the resident households both to lease out their own lands and sub-let the temple-lands to the tenants.

Table 8 also shows that across the categories in 1985-86 while the pure tenants leased in 53.70 per cent of total leased in land in the village the owner-cum and labour-cum tenants put together leased in the remaining 46.30 per cent. The average area leased in by the pure tenants was far higher at 3.91 acres per household in comparison to other categories which leased in only 1.22 acres per household. In addition, as against the pure tenants leasing in mainly from the non-resident owners of land the other categories leased in mainly from the resident owners of land. The agricultural labour-cum-tenants who leased in mainly from the resident owners of land were also observed to sell their labour power to the latter on a priority basis and often borrow money from them by pledging their labour in advance. Thus this had implications for the interlinkage of different markets in the village. The pure tenants who leased in mainly from the non-residents escaped from such interlinkage of markets whereas the agricultural labour-cum-tenants (who mainly belonged to the SCs) leased in the temple-lands from the resident big farmers. The latter, to some extent, were caught up in such interlinkage of

lease, labour and credit markets in the village. The owner cum tenants who mainly belonged to the upper castes had also escaped from such perverse relationships prevailing in tenancy. The consequence of this type of tenancy was while the pure tenants and the owner-cum-tenants cultivated their leased in lands on a long term basis without any threats of evictions, the agricultural labour-cum-tenants could not. And this had implications for the incomes earned by different categories of households from tenancy in the village.

Almost all lands in the village were leased in on Kuttagai (fixed rent) basis. And none of the tenancy contracts was registered. The rent charged per acre per year had gone up from 2 to 3 bags of paddy between 1970-71 and 1985-86. But the rent charged per acre per year was lower than the rent prescribed by the government of Tamil Nadu for the agriculural land in 1980. The prescribed charge was one-fourth of the total value of agricultural produce obtained from an acre of cultivation.[18] Considering the average per acre yield rate of paddy at 12.33 bags of (80 kgs each) along with the by-product (i.e., hay) and the value of additional cash crop (for which rent was not charged) raised in the same leased in land, the rent paid in the village was much lower compared to the prescribed land rent in the state. And of all the categories of tenants, the pure tenants enjoyed much better position with respect to the terms and conditions of tenancy in the village even in the mid-80s. This explained how and why the pure tenants continued on the same leased in lands for over a decade, virtually compensating their

lack of land ownership in the village.

Changes in the ownership of related agricultural assets

A) Livestock

In a traditional agricultural village like Verkadu where agriculture was not mechanised, the livestock ownership becomes crucial both for carrying on its cultivation activities and for earning supplementary incomes from non-agricultural occupations. The data on changes in the livestock ownership of the village between 1976-77 and 1985-86 are provided in Table 9. The table shows that between these two years the total number of animals owned in the village declined from 255 to 222 a decline of 12.94 per cent. This is slightly higher in comparison to the marginal declines observed in the same at the district (-6.5 per cent) and the taluk (-3.65 per cent) levels between 1977 and 1982.[19] Among the different types of animals owned in the village whereas the numbers of the bullocks and young animals declined, the numbers of he-buffaloes and the income earning milch animals, sheep and goats had increased. If we consider only the changes in the draught animals (i.e., bullocks and he-buffaloes) used in agriculture then the table reveals that they declined considerably by 28.33 per cent. But this decline was comparable with the taluk (-24.26 per cent) and the district (-39 per cent) level declines observed between 1977 and 1982.[20] In addition, such declines in the numbers of draught animals, especially the bullocks and increases in the numbers of milch animals, sheep and goats have also been observed by the studies conducted in some of

Table 9 Changes in Livestock Ownership between 1976-77 and 1985-86 in Verkadu

Type of animals	1976-77	1985-86	Absolute change over the years
1. Number of bullocks	116	72	- 44
2. Number of milch animals	33	57	+ 24
3. Number of he-buffaloes	4	14	+ 10
4. Number of young animals (below 3 years)	65	35	- 30
5. Number of sheep and goats	37	44	+ 7
Total	255	222	- 33

Sources: 1) Livestock census Register, 1976-77.
2) Data for 1985-86 are from field survey (census).

the backward agricultural villages of Tamil Nadu[21] The declining number of draught animals in Verkadu was brought about mainly by the sale of livestock to the non-residents both by the households which out-migrated (13) and the resident households (15) which lost their land ownerships completely during the last 15 years.

The data on per household ownership of different types of animals in 1985-86 are presented in Table 10. The table shows that out of the total number of animals owned in the village the small farmers' share was the largest followed by the big and medium farmers and the pure tenants. And none of the categories owned more than 22 per cent of the total number of animals in the village. Thus there was less concentration of livestock ownership among the households in 1985-86. In terms of the number of animals owned per household the table shows that the big farmers owned the largest followed by the small and medium farmers. In comparison to the village average, while the artisanal and service households did not own any animals the groups of agricultural labourers and non-agricultural casual workers owned only negligible number of animals per household. And this had implications for the incomes earned by them both from agricultural and non-agricultural occupations to which we will return later in the chapter.

Since the draught animal labour power is crucial for the traditional pattern of agriculture we need to analyse its ownership even per unit of land across the categories in the

Table 10 Livestock Ownership: Categorywise Distribution in Verkadu, 1985-86

Category of households	No. of H.Hs	Number of different types of animals owned: Bullocks	Milch animals	He-buffaloes	Sheep and Goats	Young animals	Total number of animals owned by the category	As percentage to the village total	Number of animals owned per H.H
1. Big farmers	6	12	16	-	5	7	40	18.01	6.67
2. Medium farmers	9	10	17	2	4	5	38	17.12	4.22
3. Small farmers	9	21	7	2	8	10	48	21.62	5.33
4. Marginal farmers	9	8	5	-	5	2	20	9.01	2.22
5. Pure Tenants	13	12	2	8	3	5	30	13.51	2.31
6. Agricultural labourers	23	3	-	-	-	1	4	1.81	0.17
7. Non-agricultural workers with regular salaried employment	14	4	5	2	11	5	27	12.16	1.93
8. Non-agricultural casual workers	41	2	5	-	8	-	15	6.76	0.36
9. Artisanal and service households	4	-	-	-	-	-	--	--	--
Total	128	72	57	14	44	35	222	100.00	1.73
As percentage to the total	--	32.43	25.67	6.31	19.82	15.77	100.00	--	--

Source: Field survey (census).

village in 1985-86. The relevant data are provided in Table 11. As the table shows, on an average there was a pair of bullocks for every 3.43 acres of operated area in the village. Our field enqurıes revealed that on an average a pair of bullocks could take care of the cultivation of 6 to 7 acres per season.[22] By applying this norm we can observe that despite the declining number of bullocks the village had enough of draught animal labour power available to carry on its traditional agricultural operations. Across the categories with the exception of the small and marginal farmers and the pure tenants all other categories fell short of this required draught animal labour power. But this shortage was met by hiring in bullocks.

B) **Agricultural implements**

The little information available from the official Livestock Census Register, 1977, in comparison to our own census data collected for the year 1985-86 on the ownership of different types of implements revealed that while the number of wooden ploughs declined from 57 to 48 the number of iron ploughs remained the same at 57. Thus there was a tendency for the declining use of wooden implements in traditional agriculture. And this had implications for the declining employment and incomes earned by the artisans in the village. Similar observations have also been made by the studies conducted in some of the traditional agricultural villages of Tamil Nadu.[23]

The distribution of agricultural implements across the

Table 11 Ownership of Draught Animals per Household and per unit of Land across Different Categories in Verkadu in 1985-86

(Extents in acres)

Category of households	Total No. of H.Hs	No. of H.Hs operating land	Extent of area operated	No. of Draught animals owned: Bullocks	He-buffaloes	Total	No. of draught animals per H.H	No. of draught animals per land operating H.H	Average extent of operated area per pair of draught animals
1. Big farmers	6	6	68.90	12	--	12	2	2.40	11.48
2. Medium farmers	9	9	59.20	10	2	12	1.33	1.33	9.87
3. Small farmers	9	8	38.08	21	2	23	2.55	2.87	3.30
4. Marginal farmers	9	9	18.21	8	-	8	0.89	0.89	4.55
5. Pure tenants	13	13	56.96	12	8	20	1.54	1.54	5.70
6. Agricultural labourers	23	12	16.49	3	-	3	0.13	0.25	11.00
7. Non-agricultural workers with regular salaried employment	14	10	25.70	4	2	6	0.43	0.60	8.57
8. Non-agricultural casual workers	41	8	8.24	2	-	2	0.05	0.25	8.24
9. Artisanal and service households	4	2	2.90	-	-	-	-	-	-
Total or averages	128	77	294.68	72	14	86	0.67	1.13	3.43

Source: Field survey (census).

categories is provided in Table 12. The table shows that the categories of agricultural labourers, non-agricultural casual workers and the artisanal and service households who also cultivated small extents of lands did not own any implement even in the mid-80s. And this adds up to their problem of negligible ownership of livestock already observed in the village. This phenomenon, in particular, for the agricultural labourers meant foregoing a part of high wage incomes earned from hiring out their labour, especially in operations like ploughing and transportation where there is complementarity of human labour and animal power in traditional agriculture.

Table 12 Agricultural Implements: Categorywise Distribution in Verkadu, 1985-86

Type of agricultural implements	Category of households									Total
	Big farmers	Medium farmers	Small farmers	Marginal farmers	Pure tenants	Agricultural labourers	Non-agricultural workers with regular salaried employment	Non-agricultural casual workers	Artisonal & service H.Hs	
1. Wooden ploughs	10	13	9	7	5	--	4	--	--	48
2. Iron ploughs	13	15	8	7	9	--	5	--	--	57
3. Knives and sickles	69	81	57	51	60	--	35	--	--	353
4. Levelling boards	5	7	7	1	4	--	3	--	--	27
5. Bullock carts	4	7	4	--	3	--	3	--	--	21
6. Other traditional implements	57	40	25	25	39	--	20	--	--	206
Total	158	163	110	91	120	--	70	--	--	712
As percentage to the total	22.19	22.89	15.45	12.78	16.85	--	9.83	--	--	100.00

Source: Field survey (census).

Chapter IV

Agriculture

As has already been said Verkadu is one of the few villages in the district of Chengalpattu-MGR which still cultivate the crops based on traditional techniques. Traditional varieties of paddy is its main crop. High Yielding Varieties of paddy is grown in about 10 per cent of the total paddy area that too on an experimental basis. Agriculture has yet to be mechanised. Hence crop production is caried on mainly based on human and bullock labour. Tank is the sole source of irrigation. There are no wells or pumpsets in the village. Hence the lands remain fallow for 4 to 6 months in a year. The traditional varieties of paddy is grown based on the age-old technique of broadcasting the seed rather than by transplanting the seedlings. Hence traditional agriculture practised in Verkadu provides larger employment opportunities to the males in comparison to the females. Since agricultural land is sandy it is less fertile. Its water and moisture holding capacity is also low. Hence the traditional pattern of cultivation is most suited to the environmental and ecological conditions prevailing in the village. And all these factors kept the productivity of a major crop like paddy at a low level even in the mid-80s. Hence what follows in the remaining paragraphs of this chapter is an account of how traditional agriculture is practised and how it affected the incomes of different socio-economic groups in the village.

Cropping Pattern

The data on changes in the cropping pattern of the village between 1970-71 and 1985-86 are presented in Table 13. The table shows that over a period of 15 years both the extensive and intensive cultivation of crops (in terms of the increase in the net sown area) had gone up marginally, the former by 3.87 per cent and the latter from 1.17 per cent to 1.29 per cent. The intensity of cropping achieved in the village at 1.29 per cent in 1985-86 was comparable with that of the same achieved at the state level (1.20 per cent) for the same year.[24] Across the crops, the table shows that the traditional varieties of paddy was still cultivated as a major crop in 1985-86. But by the mid-80s even the high yielding varieties (HYVs) of paddy came to occupy a small percentage (6.96) of total paddy area in the village. Among the other crops which were raised mainly in the second season (January to April) there had been a significant change observed in them. The change had been mainly from the subsistence crops like ragi and cumbu to the commercial crops like groundnut and gingelly. These two crops themselves occupied 70.43 per cent of the total cropped area (i.e., 145 out of 205.86 acres) in the second agricultural season of 1985-86. In fact, groundnut was introduced only in the early 80s. Even these two cash crops belonged to the traditional varieties rather than to the HYVs. However, the continued cultivation of traditional varieties of paddy as a major crop along with the changes from the subsistence millet crops to cash crops in the second agricultural season by the mid-80s had their own implications for

Table 13 Changes in the Cropping Pattern of Verkadu between 1970-71 and 1985-86

(Area in acres)

Type of crop	1970-71			1985-86		
	First season	Second season	Total	First season	Second season	Total
1. Paddy a) traditional	641.41	--	641.41	616.74	52.00	668.74
b) HYV	--	--	--	50.00	--	50.00
2. Groundnuts	--	--	--	--	84.00	84.00
3. Gingelly	--	24.25	24.25	--	61.00	61.00
4. Ragi	--	82.47	82.47	--	0.49	0.49
5. Cumbu	--	8.50	8.50	--	--	--
6. Chillies	--	2.15	2.15	--	2.20	2.20
7. Casurina	--	--	--	--	6.17	6.17
Gross cropped area	641.41	117.37	758.78	666.74	205.86	872.60
Net sown area	--	--	649.61	--	--	674.77
Intensity of cropping	--	--	1.17	--	--	1.29

Source: Village Adangals, Fasli 1380 and 1395 respectively relating to the years of 1970-71 and 1985-86.

the marketing and credit activities and finally to the incomes earned by different categories of households in the village to which we will come again.

Irrigation

Tank continued to be a major source of irrigation for cultivation of crops in the village. This was supplemented by 3 ponds through the traditional ettram (or Picota) type of irrigation system. The tank water was shared by 3 villages including Verkadu for irrigation purposes. Due to this no village took interest in maintaining the tank in a proper working condition. Within the village tank water was taken to the tail ends of the ayacut only through the mud-lined open channels. And this resulted in the considerable loss of water in conveyance through leakages and evaporation. If this wastage was avoided by constructing the pucca channels the gross cropped area of the village could have gone up by about 20 per cent.

While the tank irrigated the major crop like paddy raised in the samba season (September to February) ponds partly irrigated the less irrigation intensive crops like groundnut and gingelly grown in the Navarai season (January to April) through ettrams. Verkadu was one of the few villges in the taluk which still used this type of irrigation system in the mid-80s. At least 10 ettrams were set up by the farmers on the bunds of ponds every year in the months of March and April in order to complete their cash crops raised in the second agricultural season (i.e. in

Navarai). A minimum of 2 persons were required to operate each of these ettrams. And farmers were found using mostly their own family labour in this operation. However, this type of traditional irrigation system survived largely because farmers wanted to economise the use of available surplus water in the ponds for successfully completing their second season crops. Hence they had not allowed any particular farmer to pump-out the pond water even by diesel engines and monopolise this common water resource. Similar situation has also been observed in one of the less irrigated villages of West Bengal[25] during the recent years. However, since the Verkadu tank belonged to two other villages the non-resident farmers were allowed to pump-out the remaining shallow water for irrigation by diesel engines in the months of March and April.

There existed no irrigation institutions to control and share the tank water equally among the 3 villages. Same was the case even with respect to the allocation of tank water equally among the farmers of the village. Recently the resident farmers had also stopped employing two irrigation workers who were doing this job earlier. Consequently, while the farmers in the head-reaches benefited from tank irrigation the farmers in the tail ends had to suffer the low yield rates for want of adequate irrigation. Hence there arose frequent disputes over the use of tank water among the farmers. Thus the tank irrigation system demanded considerable amount of family labour and personal supervision on the part of the farmers. And those households who were preoccupied with some other occupations and for whom

cultivation only provided a supplementary source of income had to accept the low per acre yield rate due to inadequate irrigation.

Cultivation Practices

Like the other farmers of the district Verkadu farmers also followed the three well established agricultural seasons, namely (1) Samba (September to January), (2) Navarai (January to April and (3) Sornavari[26] (May to August). But the pattern of cultivation adopted by Verkadu farmers was different. They raised largely the traditional varieties of paddy based on broadcasting (of seed) method in the Samba season and the less irrigation intensive cash crops like groundnut and gingelly in the Navarai season. And the lands were completely left fallow in the Sornavari season for want of water till the next Samba crop. But the farmers made use of this long lean agricultural season (from May to August) for the preparation of land (i.e., ploughing, levelling, fertilising and bund trimming) with the help of occasional showers wetting the land. And almost all agricultural operations connected with land preparation and the broadcasting or sowing of seed were done mainly by the male agricultural labourers and the females were employed only in weeding and harvesting operations along with the male labourers. And this had restricted the employment opportunities available for the female workers in traditional agriculture in comparison to the male workers. Further, not only the traditional varieties of paddy were cultivated as dry crops by braodcasting the seed but also the HYVs of paddy too. Again even the cash crops

belonged to the traditional varieties rather than to the HYVs. Farmers preferred to cultivate them because they required much less irrigation and were free from pests and diseases in comparison to HYV groundnut and gingelly. Of course, the traditional varieties of paddy were much more drought and pest-resistant in comparison to the HYV paddy. Further, the floods or heavy rains, especially at the time of harvesting can cause heavy damage to the HYV paddy and not to the traditional varieties of paddy. Hence there was a rationale on the part of the farmers, given their own unstable irrigation sources, to go in for the cultivation of only the less risky traditional varieties which assured them some minimum of profits.

Since the traditional varieties of crops were grown based either on broadcasting or sowing method there was not much scope for the use of chemical fertilisers in crop production. Farmers had to necessarily apply domestic manures before sowing the crop. This was because the chemical fertilisers were applied only in the wet cultivation of crops but not in the dry cultivation of crops. Farmers during the recent years had started applying small quantities (on an average 20 to 30 kgs of urea per acre) of chemical fertilisers, especially after weeding when the fields were wet. There was much less application of pesticides because the traditional varieties of crops were not pest and disease prone like the HYV crops. Further, the operations connected with the cultivation of traditional varieties of crops were performed leisurely without any urgency. This enabled the farmers to

maximise the use of their own family and bullock labour in crop production. Thus, this type of cultivation practices helped the cultivators to use more of owned inputs and less of purchased inputs in traditional agriculture. And this had implications for the incomes earned by different categories of farmers in the village to which we will come soon.

Labour absorption in traditional agriculture

The number of man-days used in the per acre cultivation of different crops in the village in 1985-86 are provided in Table 14. The table shows that of all the crops gingelly cultivation required the smallest number of man-days. The same with respect to the other crops varied between 51 and 57 mandays per acre. These numbers of man-days used in the per acre cultivation of different crops in the village were far lower compared to the same at the state level in 1980. According to the National Council of Applied Economic Research (NCAER) it varied between 70.32 and 79 man-days per acre.[27] Hence almost all crops grown in the village in the mid-80s were far less labour-intensive.

The consequences of the cultivation of such less labour-intensive crops were felt differently by different categories of labourers in the village over the years. Between 1970-71 and 1985-86, the numbers of both permanent farm servants and cowherds declined from 10 to 2. In the same manner the collective employment of 2 irrigation workers and 3 field guards had also been discontinued in the 80s. And the negligible increases

Table 14 Operation-wise and Crop-wise Average Number of Man days Used in the Per Acre Cultivation in Verkadu in 1985-86

(All per day of 8 hrs)

Type of agricultural operation	Name of the crop				
	HYV paddy	Traditional varieties of paddy	Ragi	Groundnut	Gingelly
1. Ploughing	5	6	6	7	2
2. Sowing	1	1	-	8	-
3. Bund Trimming and land levelling	1	2	3	1	1
4. Transporting	2	2	1	2	-
5. Plucking of seedlings	-	-	3	-	-
6. Transplanting	-	-	12	-	-
7. Weeding	15	17	15	18	10
8. Pesticiding	-	-	-	-	-
9. Harvesting	33	26	12	15	10
Total	57	54	52	51	23

Source: Field surveys (purposive and sample).

observed both in the extensive and intensive cultivation of even the less labour-intensive crops led to the inability of traditional agriculture to absorb the growing casual labour force in the village. Hence this resulted in the conversion of a part of male casual agricultural labour force into non-agricultural casual work force seeking employment outside the village. Some of the owner cultivators who lost their lands had also joined the non-agricultural occupations available outside the village. This was against the trend observed by the NSS in rural Tamil Nadu between 1972-73 and 1983. According to the NSS there was an increased casualisation of agricultural labour force in the state consequent to the decline in regular wage employment in agriculture.

Table 15 provides the information on different types of labour used in the per acre cultivation of a major crop like paddy across the major land operating categories in 1985-86. The table shows that out of a total number of 53.54 man days used in the per acre cultivation of paddy in the village while family labour accounted for 15.11 days or for 28.22 per cent hired labour accounted for 30.18 days or for 56.37 per cent. The migrant labour accounted for 8.25 man-days or for 15.41 per cent of total man-days employed per acre. Thus the use of family labour in paddy cultivation was considerable. While the migrant labourers were employed mainly in harvesting operation the tractor services were hired-in mainly for the threshing of HYV paddy,[28] raised in a small proportion of the total paddy area. The number of days of employment offered to the hired labourers

Table 15 Utilisation of Labour (per acre) in Paddy Cultivation across Major Categories in Verkadu in 1985-86

(All per day of 8 hours)

Category of households	No. of H. Hs operating land	Average number of days of different types of labour used per acre						
		Own labour	Own bullock labour	Hired labour	Hired bullock labour	Hired tractor (in hrs)	Migrant labour	Total number of labour days used
1. Big Farmers	6	7	4.50	45	3.50	60 Minutes	4.00	56
2. Medium farmers	9	8	5.00	34	4.00	15 "	13.00	55
3. Small farmers	8	26	6.00	23	2.00	30 "	5.00	54
4. Marginal farmers	9	13	2.50	37	4.50	15 "	4.00	54
5. Pure tenants	13	24	4.00	19	3.00	--	9.00	52
6. Non agricultural workers with regular salaried employment	10	8	2.00	32	6.00	30 "	12.00	52
Total or weighted averages	55	15.11	3.90	30.18	3.86	21.27 "	8.25	53.54

Source: Field survey (sample).

was shared both by the residents and the non-residents. And almost all farmers in the village employed casual agricultural labourers for carrying on their cultivation activities.

The sample survey of agricultural labour households in the village revealed that while a male casual agricultural labourer secured employment on an average for 117 days for a female casual agricultural labourer it was only 64 days in 1985-86. Hence as has already been stated the traditional pattern of agriculture provided far less employment to the female workers in comparison to the males. And this had implications for the incomes earned by the agricultural labourers in the village. This we will analyse later.

Changes in money and real wages rates

The data on changes in the money and real wage rates (deflated by rice II sort prices prevailing in the village) paid to casual agricultural labourers between 1970-71 and 1985-86 are presented in Table 16. The table reveals that the money wage rates paid to males and females in agriculture had gone up by 3 to 4 times between 1970-71 and 1985-86. But the real wage rates paid to male casual agricultural labourers declined in many labour-intensive operations during the same period. The real wage rates paid to females in harvesting had gone up slightly. However, since the male casual agricultural labourers were employed for the larger number of days in comparison to the females the declining real wage rates paid to them could have

Table 16 Changes in the Money and Real Wage Rates (in terms of rice II sort) paid to Casual Agricultural Labourers between 1970-71 and 1985-86 in Verkadu

Type of agricultural operation	Money wage rates (in Rs.) paid to				Real wage rates (in kgs of rice) paid to			
	Males in		Females in		Males in		Females in	
	1970-71	1985-86	1970-71	1985-86	1970-71	1985-86	1970-71	1985-86
1. Ploughing	5+M	12	-	-	5.30	3.43	-	-
2. Land levelling and bund trimming	5+M	12	-	-	3.30	3.43	-	-
3. Fertilising	3+M	10+M	-	-	3.30	3.16	-	-
4. Sowing	5+M	15+M	-	-	5.30	4.58	-	-
5. Transplanting	-	-	-	9.00	-	-	-	-
6. Weeding	3+M	10	2+M	8.00	3.30	2.86	2.30	2.28
7. Pesticiding	-	-	-	-	-	-	-	-
8. Transporting	3+M	12+M	-	-	3.30	3.63	-	-
9. Harvesting	5+M	13+M	3+M	11+M	5.30	4.01	3.30	3.44

Note: M = Meals.

@ The rice II sort prices went up from Re.1 in 1970-71 to Rs.3.50 in 1985-86 in the retail market and hence the real wage rates were worked out accordingly. To this we have added the actual quantity of rice (300 grams per meal) supplied to the casual labouerers as meals on the farm both in 1970-71 and in 1985-86.

Source: Field survey (sample).

affected their household incomes earned from agriculture. Some of the studies conducted in other traditional agricultural villages of Tamil Nadu and elsewhere have also observed the declining real wage rates paid to casual agricultural labourers over the years.[29] Again, the same phenomenon had also been observed at the state level of Tamil Nadu between 1964-65 and 1977-78 by the Rural Labour Enquiries and the NSS.[30]

Some of the factors which accounted for the declining real wage rates paid to male casual agricultural labourers in the village were: (a) the sharing of hired labour employment both by the residents and the non-residents, (b) employment of in-migrants, especially in harvesting operation, (c) sub-letting of temple-lands to the agricultural labourers by the resident big farmers which resulted in the interlocking of lease and labour markets, and (d) the increased degree of monetisation of wage payments in agriculture.

Contrary to the declining real wage rates paid to male casual agricultural labourers, the real wage rates paid to permanent farm servants and cowherds doubled between 1970-71 and 1985-86. While the annual real wage rates paid to a permanent farm servant had gone up from 6 to 12 bags of paddy the same for a cowherd had gone up from 3 to 6 bags of paddy. However, these increased real wage rates were associated with considerable declines in their employment in the village.

Costs and returns in paddy cultivation

A) Costs

The analysis of costs and returns relating to the cultivation of paddy, a major crop grown in the village is important for understanding both the efficiency (measured in terms of input-output ratios) and the profitability of traditional pattern of agriculture. Though the per acre costs and returns are worked out for all categories the analysis is important only for the major land operating categories (which together operated 90.62 per cent of the total operated area in 1985-86) such as the big, medium, small and marginal farmers and the pure tenants and the non-agricultural workers with regular salaried employment. There were also the less land-operating categories (which together operated 9.38 per cent of the total operated area in 1985-86) such as the agricultural labourers non-agricultural casual workers and artisanal and service households.

The data on different costs of cultivation (A1, A2, B and C) incurred per acre of paddy by different categories in 1985-86 are presented (for the methodology, see Appendix-2) in Table 17. The table shows that the per acre total cost of cultivation (i.e., Cost C) incurred on paddy by the less land operating categories were lower in comparison to the same by the major land operating categories. This difference arose mainly due to lack of animal labour power and the hiring in of the same by the less land operating categories. Among the categories the per acre total cost of cultivation varied from a minimum of Rs.1205.70 to a

Table 17: Average Per Acre Cost of Cultivation of Paddy Incurred by Different Categories in Verkadu, 1985-86

(All in Rs.)

Item	Big farmers	Medium farmers	Small farmers	Marginal farmers	Pure tenants	Non-agricultural workers with regular Salaried employment	Agricultural labourers	Non-agricultural casual workers	Artisanal and service households
1. Hired human labour (casual)	361.25	369.17	227.50	390.12	285.50	354.25	210.00	380.00	370.00
2. Hired human labour (permanent)	75.00	--	--	--	--	--	--	--	--
3. Owned bullock labour	64.25	76.83	102.62	33.00	56.15	27.25	25.00	30.00	--
4. Hired bullock labour	50.00	62.00	25.12	63.50	48.95	103.12	95.00	100.00	125.00
5. Tractor (owned)	--	--	--	--	--	--	--	--	--
6. Tractor (hired)	100.00	25.00	50.00	25.00	--	25.00	--	--	--
7. Seeds (owned)	118.65	120.83	124.12	110.00	108.00	115.25	--	--	--
8. Seeds (purchased)	--	--	--	--	--	--	125.00	115.00	120.00
9. Domestic manures:									
a) owned	152.50	155.00	137.50	107.50	102.00	123.12	10.00	10.00	--
b) purchased	--	--	--	--	--	--	60.00	70.00	90.00
10. Chemical fertilisers and pesticides	112.50	116.66	132.12	120.00	130.60	142.25	80.50	88.00	80.00
11. Depreciation	20.82	30.83	69.31	55.75	33.11	21.89	15.00	10.00	--
12. Land revenue	7.50	7.50	7.50	7.50	7.50	7.50	--	7.50	7.50
13. Irrigation charges	--	--	--	--	--	--	--	--	--
14. Water cess	5.00	5.00	5.00	5.00	5.00	5.00	--	5.00	5.00
15. Interest on working capital (owned)	34.25	20.33	30.00	20.00	26.27	36.98	--	--	--
16. Interest on working capital (borrowed)	--	39.00	35.25	34.00	50.00	--	75.00	70.00	75.00
17. Miscellaneous expenditures	42.00	31.50	35.00	40.75	37.00	45.25	30.00	25.00	33.00
18. Cost A1	1143.72	1059.65	981.04	1012.12	890.08	1007.36	725.50	910.50	905.50

(Table continues on the following page)

Table 17 (continued) (All in Rs.)

Item	Big farmers	Medium farmers	Small farmers	Marginal farmers	Pure tenants	Non-agricultural workers with regular Salaried employment	Agricultural labourers	Non-agricultural casual workers	Artisanal and service households
19. Rent on leased in land	--	--	--	--	195.00	--	195.00	--	--
20. Cost A2	1143.72	1059.65	981.04	1012.12	1085.08	1007.36	920.50	910.50	905.50
21. Rental value of owned land	195.00	195.00	195.00	195.00	--	195.00	--	195.00	195.00
22. Interest on fixed capital (excluding land)	--	--	--	--	--	--	--	--	--
23. Cost B	1338.72	1254.65	1176.04	1207.12	1085.08	1202.36	920.50	1105.50	1100.50
24. Value of family labour	84.00	88.00	260.62	131.37	246.80	100.37	300.00	110.70	105.20
25. Cost C	1422.72	1342.65	1436.66	1338.49	1331.88	1302.73	1220.50	1216.20	1205.70

Source: Field survey (sample).

maximum of Rs.1436.66.[31] The weighted average per acre total cost of cultivation incurred by all categories in the village worked out to Rs.1,315.44 (in Table 3.20) in 1985-86. This figure is far lower compared to the official figure of Rs.2,107.72 incurred on an acre of paddy cultivation in the state in 1981-82.[32] Thus, farmers in the village cultivated the traditional varieties of paddy at a much lower cost.

The data on owned and paid-out costs of cultivation incurred on an acre of paddy by different categories in 1985-86 are provided in Table 18. The table shows that while the proportions of total cost met by own sources varied from 40 to 60 per cent among the major land operating categories they varied from 25 to 30 per cent among the less land operating categories. And of all the categories the small farmers met the largest proportion (59.11 per cent) of total cost out of their own sources. On the whole the table makes it clear that a major crop like paddy was cultivated by using considerable proportions of owned inputs. And this had implications for the incomes earned by the major land operating households from traditional agriculture.

B) **Returns**

The returns from agriculture depend not only on the per acre cost of cultivation but also on the per acre yield rate achieved and the prices secured for the output. Table 19 provides the information on average (weighted) per acre yield rates, prices received and the gross and net incomes earned on the basis of Cost C across the categories in 1985-86. In addition, the table

Table 18 Average per acre Owned and Paid-out Costs of Cultivation of Paddy Incurred by Different Categories in Verkadu, 1985-86

(All in Rs.)

Item	Big farmers		Medium farmers		Small farmers		Marginal farmers		Pure tenants	
	Owned	Paid-out	Owned	Paid-out	Owned	Paid-out	Owned	Paid-out	Owned	Paid-out
1. Human labour	84.00	436.25	88.00	349.17	260.62	227.50	131.37	390.12	246.80	285.50
2. Bullock labour	64.25	50.00	76.83	62.00	102.62	25.12	33.00	63.50	56.15	48.95
3. Tractor services	-	100.00	-	25.00	-	50.00	-	25.00	-	-
4. Seed	118.65	-	120.83	-	124.12	-	110.00	-	108.00	-
5. Domestic manure	152.50	-	155.00	-	137.50	-	107.50	-	102.00	-
6. Chemical fertilisers and pesticides	-	112.50	-	116.66	-	132.12	-	120.00	-	130.60
7. Irrigation charges	-	-	-	-	-	-	-	-	-	-
8. Water cess	-	5.00	-	5.00	-	5.00	-	5.00	-	5.00
9. Land revenue	-	7.50	-	7.50	-	7.50	-	7.50	-	7.50
10. Depreciation	-	20.82	-	30.83	-	69.31	-	55.75	-	33.11
11. Interest on working capital	34.25	-	20.33	39.00	30.00	35.25	20.00	34.00	26.27	50.00
12. Interest on fixed capital	-	-	-	-	-	-	-	-	-	-
13. Land rent	195.00	-	195.00	-	195.00	-	195.00	-	-	195.00
14. Miscellaneous expenditures	-	42.00	-	31.50	-	35.00	-	40.75	-	37.00
Total	648.65	774.07	655.99	686.66	849.86	586.80	596.87	741.62	539.22	792.66
As percentage to the category's total cost of cultivation	45.59	54.41	48.86	51.14	59.16	40.84	44.59	55.41	40.49	59.51

(Table continues on the following page)

Table 48 (continued).

(All in Rs.)

Item	Non-agricultural workers with regular salaried employment		Agricultural labourers		Non-agricultural casual workers		Artisanal and service households	
	Owned	Paid-out	Owned	Paid-out	Owned	Paid-out	Owned	Paid-out
1. Human labour	100.37	354.25	300.00	210.00	110.70	380.00	105.20	370.00
2. Bullock labour	27.75	103.12	25.00	95.00	30.00	100.00	-	125.00
3. Tractor services	-	25.00	-	-	-	-	-	-
4. Seed	115.25	-	-	125.00	-	115.00	-	120.00
5. Domestic manure	123.12	-	10.00	60.00	10.00	70.00	-	90.00
6. Chemcial fertilisers and pesticides	-	142.25	-	80.50	-	88.00	-	80.00
7. Irrigation charge	-	-	-		-	-	-	-
8. Water cess	-	5.00	-	-	-	5.00	-	5.00
9. Land revenue	-	7.50	-	-	-	7.50	-	7.50
10. Depreciation	-	21.89	-	15.00	-	10.00	-	-
11. Interest on working capital	-	36.98	-	75.00	-	70.00	-	75.00
12. Interest on fixed capital	-	-	-	-	-	-	-	-
13. Land rent	195.00	-	-	195.00	195.00	-	195.00	-
14. Miscellaneous expenditures	-	45.25	-	30.00	-	25.00	-	33.00
Total	561.49	741.24	335.00	885.50	345.70	870.50	300.20	905.50
As percentage to the category's total cost of cultivation	43.10	56.90	27.45	72.55	28.42	71.58	24.90	75.10

Source: Field survey (sample).

Table 19 Gross and Net Incomes Earned from an Acre of Paddy Cultivation among Different Categories in Verkadu, 1985-86

Category of households	No. of HHs operating land	Average yield per acre (in bags)	Average price obtained per bag (in Rs.)	Value of paddy obtained per acre (in Rs.)	Value of hay obtained per acre (in Rs.)	Gross value of output obtained per acre (in Rs.)	Average per acre total costs of cultivation (Cost C) (in Rs.)	Net income earned per acre (in Rs.)	Input-output ratio (i.e. Cost C/ gross value of output
1. Big farmers	6	13.15	155.00	2038.25	429.27	2467.52	1422.72	1044.80	0.58
2. Medium farmers	9	13.16	150.00	1974.00	464.11	2438.11	1342.65	1095.46	0.55
3. Small farmers	8	13.75	145.00	1993.75	416.18	2409.93	1436.66	973.27	0.60
4. Marginal farmers	9	14.12	135.00	1906.20	494.20	2400.40	1338.49	1061.91	0.56
5. Pure tenants	13	14.00	140.00	1960.00	410.00	2370.00	1331.88	1038.12	0.56
6. Agricultural labourers	12	10.00	130.00	1300.00	430.00	1730.00	1220.50	509.50	0.70
7. Non-agricultural workers with regular salaried employment	10	12.50	140.00	1750.00	389.82	2139.82	1302.73	837.09	0.61
8. Non-agricultural casual workers	8	9.00	130.00	1170.00	440.50	1610.50	1216.20	394.30	0.76
9. Artisanal and service households	2	8.00	130.00	1040.00	420.00	1460.00	1205.70	254.30	0.83
Weighted average	77	12.33	139.42	1728.85	432.23	2161.08	1315.44	845.64	0.61

Source: Field survey (sample).

also provides the input-output ratios (total costs/gross value of output) obtained by each category in the village. As the table shows, the average per acre yield rate achieved in the village was 12.33 bags (of 80 kgs each) in 1985-86. This was far lower than the per acre yield rates of paddy achieved in the district (18.92 bags) and the state (18 bags) in the same year.[33] These yield rates set against the cost of paddy cultivation in the village and the state in the 1980s revealed that in the former lower per acre cost was associated with the lower per acre yield rate while in the latter higher per acre cost was associated with the higher per acre yield rate achieved.[34]

Table 19 shows that despite the inverse relationship observed between farm size and productivity[35] among the major land operating categories (such as the big, medium, small and marginal farmers and the pure tenants and the non-agricultural workers with regular salaried employment) the differences in yield rates achieved by them were only small. On the contrary, the per acre yield rates achieved by the less land operating categories (such as agricultural labourers, non-agricultural casual workers and the artisanal and service households) were far lower than the same achieved by the major land operating categories. The small and marginal farmers and the pure tenants have a little edge over the big and medium farmers in obtaining the higher per acre yield rates because they put in some special efforts in the cultivation of crops. Even among the major land operating categories the non-agricultural workers with regular salaried employment achieved the lowest per acre yield rate because they concentrated

more on non-agricultural occupations and paid little attention to agricultural activities. As far as the less land operating categories are concerned they achieved very low per acre yield rates because they are not only preoccupied with their major income earning agricultural (labour) and non-agricultural occupations but they also lacked the requisite agricultural assets such as land, livestock, family labour and capital.

Unlike the yield rates, the prices secured for the agricultural output varied over a wide margin even among the major land operating categories. But, like the yield rates, the prices secured by the less land operating categories for their agricultural output were far lower in comparison to the same obtained by the major land operating categories. Among the major land operating categories the big and medium farmers could obtain higher average prices over others because their large marketable surpluses enabled them to sell larger quantities of paddy in the lean agricultural season when the ruling prices were much higher. By contrast, the less land operating categories had to sell their produce mainly in the post-harvest season either to repay their debts or to meet their current non-food cash expenditures. In addition, a major part of their own production was consumed by themselves; an evaluation of which at post-harvest prices also reduced the average prices secured by them. Above all, they did not have enough of marketable surplus to store and sell in the lean agricultural season and benefit from higher average prices.

Table 19 also reveals the average (weighted) net income earned per acre of paddy on the basis of Cost C worked out to

Rs.845.64 in 1985-86. This is far higher compared to the net income earned from an acre of paddy cultivation in the state at Rs.301.26 in 1981-82.[36] However, the calculations of input-output ratios (total cost/gross value of output) for the village at 1985-86 and for the state at 1981-82, respectively, revealed 0.61 and 0.87. Since 89 per cent of the total paddy area in the state in 1985-86 was under HYV[37] it is reasonable to assume that the input-output ratio at the state reflects the efficiency of HYV paddy. If so the traditional pattern of paddy cultivation in the village is seen to be more efficient than the modern cultivation widespread in the state. This consideration shows that the farmers of Verkadu are quite justified in continuing to cultivate the traditional varieties of paddy.[38] Despite these advantages, a few Verkadu farmers cultivated the HYV paddy in small extents of area in order to give a trial to the new seeds.

It may be seen from Table 19 that only the major land operating categories were able to achieve fairly high levels of efficiency and profitability. By contrast, the less land operating categories show much higher input-output ratios and much lower net incomes earned per acre. This shows that the traditional agriculture is suitable only to those who engage in cultivation as a full time occupation and those who own minimum agricultural assets and family labour.

In addition to asset ownership and family labour there are also some other factors which accounted for the more efficient and more remunerative cultivation of paddy in the village. They

were both technical and economic.[39] Technically, the traditional varieties of paddy are very much resistant to droughts, floods pests and diseases which not only reduce the cost of cultivation, especially the paid-out cost but also reduced the risks involved in crop production. Further, though the traditional varieties of paddy are less productive compared to HYVs they produced high per acre quantity of hay because of their long stalks;[40] and that hay fetched high prices because it is used both as animal feed and as roofing material (spreading over thatched roofs). Again, the traditional varieties of paddy fetched higher average prices (minimum by about Rs.20 per bag of 80 kgs) in the district and the state for their better taste to the consumers in comparison to the HYV paddy.[41] Another technical advantage of the traditional varieties of paddy is in storing. They can be stored for a long time (3 to 6 months) without much loss of weight or damage in comparison to HYV paddy which cannot be stored like that for a long time. This technical advantage had helped the farmers to sell high proportions of their total paddy in the lean agricultural season at high average prices. Thus, technical and economic factors very much explained the efficiency and profitability of traditional pattern of paddy cultivation in the village vis-a-vis the HYV paddy cultivation in the state even in the 80s.

Table 20 provides the calculations on the per acre net incomes earned from paddy cultivation on the basis of different cost concepts across the categories in 1985-86. The average (weighted) per acre net income earned on the basis of paid-out cost (Rs.1,390.80) was much higher by about two-thirds (64.47 per

Table 20 Different Costs of Cultivation Incurred and Net Incomes Earned per Acre of Paddy over the Categories in Verkadu, 1985-86

(All in Rs.)

Category of household	No. of HHS operating land	Gross income earned per acre	Cost A1	Net income earned per acre	Cost A2	Net income earned per acre	Cost B	Net income earned per acre	Cost C	Net income earned per acre	Paid-out cost	Net income earned per acre
1. Big farmers	6	2467.52	1143.72	1323.80	1143.72	1323.80	1338.72	1128.80	1422.72	1044.80	774.07	1693.45
2. Medium farmers	9	2438.11	1059.65	1378.46	1059.65	1378.46	1254.65	1183.46	1342.65	1095.46	686.66	1751.45
3. Small farmers	8	2409.93	981.04	1428.89	981.04	1428.89	1176.04	1233.89	1436.66	973.27	586.80	1823.13
4. Marginal farmers	9	2400.40	1012.12	1388.28	1012.12	1388.28	1207.12	1193.28	1338.49	1061.91	741.62	1658.78
5. Pure tenants	13	2370.00	890.08	1479.92	1085.08	1284.92	1085.08	1284.92	1331.88	1038.12	792.66	1577.34
6. Agricultural labourers	12	1730.00	725.50	1004.50	920.50	809.50	920.50	809.50	1220.50	509.50	885.50	844.50
7. Non-agricultural workers with regular salaried employment	10	2139.82	1007.36	1132.46	1007.36	1132.46	1202.36	937.46	1302.73	837.09	741.24	1398.58
8. Non-agricultural casual workers	8	1610.50	910.50	700.00	910.50	700.00	1105.50	505.00	1216.20	394.30	870.50	740.00
9. Artisanal and service households	2	1460.00	905.50	554.50	905.50	554.50	1100.50	359.50	1205.70	254.30	905.50	554.50
Weighted averages	77	2161.08	945.48	1215.60	1008.79	1152.29	1140.48	1020.60	1315.44	845.64	770.28	1390.80

Source: Field survey (sample).

cent) compared to the same earned on the basis of total costs (Rs.845.64). The difference shows the extent of incomes earned by the owned inputs used in traditional agriculture. Over the categories, the per acre net incomes earned on the basis of paid-out costs were higher among the major land operating categories in comparison to the same among the less land operating categories. But this simply reflected the lack of owned inputs used in agriculture by them and their consequent inability to raise crops efficiently unlike others.

Income from agricultural production

The estimates (obtained by multiplying the average per acre yield rate of a particular crop with that of the area under that crop) of production of different crops by different categories are given in Table 21. As the table shows the village in 1985-86 produced 3,643.31 bags (of 80 kgs each) of paddy, 414.67 bags (of 80 kgs each) of groundnuts and 100.82 bags (of 100 kgs each) of gingelly. As far as the production of a major crop like paddy is concerned while the major land operating categories accounted for 93.22 per cent the less land operating categories accounted for a negligible 6.78 per cent. With regard to the production of cash crops the table shows some sort of specialisation on the part of different categories of farmers. Whereas the groundnuts which required some capital expenditures (mainly for the purchase of seed and land preparation) was cultivated only by the big, medium and small farmers the less labour and capital intensive and rainfed crop like gingelly was cultivated by all categories

Table 21 Estimates of Agricultural Production and Productivity across Different Categories in Verkadu, 1985-86

Category of households	Paddy			Groundnuts			Gingelly		
	Area (in acres)	Average yield per acre (in bags)	Production (in bags)	Area (in acres)	Average yield per acre (in bags)	Production (in bags)	Area (in acres)	Average yield per acre (in bags)	Production (in bags)
1. Big farmers	65.90	13.15	866.58 (23.78)	16.78	10.00	167.80 (40.47)	-	-	-
2. Medium farmers	54.20	13.16	713.27 (19.58)	17.43	9.00	156.87 (37.83)	-	-	-
3. Small farmers	35.00	13.75	481.25 (13.21)	10.00	9.00	90.00 (21.70)	12.12	2.00	24.24 (24.04)
4. Marginal farmers	18.21	14.12	257.12 (7.06)	-	-	-	5.28	1.50	7.92 (7.86)
5. Pure tenants	54.96	14.00	769.44 (21.12)	-	-	-	22.78	2.00	45.56 (45.19)
6. Agricultural labourers	15.49	10.00	154.90 (4.25)	-	-	-	4.30	1.50	6.45 (6.40)
7. Non-agricultural workers with regular salaried employment	24.70	12.50	308.75 (8.47)	-	-	-	6.65	1.75	11.64 (11.54)
8. Non-agricultural casual workers	8.00	9.00	72.00 (1.98)	-	-	-	2.13	1.25	2.66 (2.64)
9. Artisanal and service households	2.50	8.00	20.00 (0.55)	-	-	-	1.57	1.50	2.35 (2.33)
Total or averages	278.96	13.06	3643.31	44.21	9.38	414.67	54.83	1.84	100.82

Note: Figures in brackets are percentages to the total production of each crop.
Source: Estimates based on the field data (sample).

of cultivators. Of course, the category of small farmers cultivated all the three types of crops, thus taking the maximum advantage of traditional agriculture. However, the categories other than the big and medium farmers allotted some of their lands for the cultivation of gingelly because it is less risky and more remunerative given their own soil and irrigation conditions in the village.

Table 22 shows the shares of total incomes earned from crop production on the basis of Cost C by different groups of cultivators in 1985-86. The total income earned by all categories from crop production in 1985-86 was Rs.3,42,489.87. Out of this total income while the big farmers earned about a fourth the medium farmers and the pure tenants earned about a fifth each. As against the major land operating categories earning 95.51 per cent of total income the less land operating categories earned a negligible 4.49 per cent. The negligible incomes earned from crop production by the less land operating categories reflected not only their lack of agricultural assets but also the distress conditions (caused by the interlocked lease, labour and credit markets) under which they raised crops in the village.

The average per household income earned from crop production by different categories is given in Table 23. The table shows that the average household income for all categories of households is Rs.2,675.70 in 1985-86. But for land operating households it is Rs.4,506.44. It is seen also that households

Table 22: Estimates of Total Net Incomes Earned from Crop Production by Different Categories of Households in Verkadu in 1985-86

Category of households	No. of HHs	Area under paddy (in acres)	Average net income earned per acre on Cost C basis (in Rs.)	Income earned from paddy production (in Rs.)	Area under other crops (in acres)	Average net income earned per acre on Cost C basis (in Rs.)	Income earned from the production of other crops (in Rs.)	Total income earned from the production of paddy & other crops (in Rs.)	As percentage to the total
1. Big farmers	6	65.90	1044.80	68852.32	16.78	950.00	15941.00	84793.32	24.76
2. Medium farmers	9	54.20	1095.46	59373.93	17.43	900.00	15687.00	75060.93	21.92
3. Small farmers	9	35.00	973.27	34064.45	22.12	715.00	15815.80	49880.25	14.56
4. Marginal farmers	9	18.21	1061.91	19337.38	5.28	550.00	2904.00	22241.38	6.49
5. Pure tenants	13	54.96	1038.12	57055.07	22.78	600.00	13668.00	70723.07	20.65
6. Agricultural labourers	23	15.49	509.50	7892.15	4.30	500.00	2150.00	10042.15	2.93
7. Non-agricultural workers with regular salaried employment	14	24.70	837.09	20676.12	6.65	560.00	3724.00	24400.12	7.12
8. Non-agricultural casual workers	41	8.00	394.30	3154.40	2.13	400.00	852.00	4006.40	1.17
9. Artisanal and service households	4	2.50	254.30	635.75	1.57	45[illegible]00	706.50	1342.25	0.39
Total/Averages	128	278.96	800.98	271041.57	99.04	625.00	71448.30	342489.87	100.00

Source: Estimates based on sample survey

Table 23 Per Household Net Incomes Earned from Crop Production Across the Categories in Verkadu in 1985-86

Category of households	No.of HHs in the category	No.of HHs operating land	Extent of area operated (in acres)	Total net income earned from crop production on Cost C basis (in Rs.)	Average net income earned per operated acre (in Rs.)	Average net income earned per HH in the category (in Rs.)	Average net income earned per land operating HH (in Rs.)
1. Big farmers	6	5	68.90	84793.32	1230.67	14132.22	16958.66
2. Medium farmers	9	9	59.20	75060.93	1267.92	8340.10	8340.10
3. Small farmers	9	8	38.08	49880.25	1309.88	5542.25	6235.03
4. Marginal farmers	9	9	18.21	22241.38	1221.38	2471.26	2471.26
5. Pure tenants	13	13	56.96	70723.07	1241.62	5440.23	5440.23
6. Agricultural labourers	23	12	16.49	10042.15	608.98	436.61	836.84
7. Non-agricultural workers with regular salaried employment	14	10	25.70	24400.12	949.42	1742.86	2440.01
8. Non-agricultural casual workers	41	8	8.24	4006.40	486.21	97.72	500.80
9. Artisanal and service households	4	2	2.90	1342.25	462.84	335.56	671.12
Total	128	76	294.68	342489.87	1162.24	2675.70	4506.44

Source: Computations based on the field data (sample).

with low level of assets such as agricultural labourers, non-agricultural casual workers and artisanal and service households average incomes were lower than the village average income.

Marketing and distribution of paddy

The estimates of different quantities (sample averages multiplied by the number of land operating households in each category) of paddy marketed and distributed among the various items of production and consumption are presented in Table 24. The table reveals that out of the total paddy production of 3,643.31 bags (of 80 kgs each) 35.48 per cent was distributed and 64.52 per cent was marketed by all categories in the village in 1985-86. Thus, a little less than two-thirds of total paddy production was obtained as marketable surplus in the village. This was much higher compared to only 34 per cent of state's total paddy production available for the market in the early 80s.[42] Out of total paddy production of the village, the own consumption itself claimed about one-fifth. The shares in total paddy production earned by agricultural labourers and artisanal and service households were much less. The share claimed by the land rent paid on leased in land was considerable at 7.80 per cent.

Out of total paddy production while 18.47 per cent was marketed in the post-harvest season 46.05 per cent was marketed in the lean agricultural season. Thus a large proportion of total paddy was marketed in the lean agricultural season when the prices of traditional varieties of paddy were higher (Rs.150 to

Table 24 Categorywise Estimates of Production and Distribution of Paddy in Verkadu, 1985-86

Category of households	No. of HHs operating land	Area under paddy (in acres)	Production of pady (in bags)	Distribution (in bags): Q retained as seed	Q retained for consumption	Q paid as wages for agri. labourers	Q paid to artisanal & service HHs	Q paid as rent	Total Q of paddy distributed (in bags)	As %age to the category's production
1. Big farmers	6	65.90	866.58	30.00	95.00	25.00	5.00	-	155.00	17.89
2. Medium farmers	9	54.20	713.27	27.72	142.47	-	11.97	10.29	192.45	26.98
3. Small farmers	8	35.00	481.25	18.96	112.00	22.00	8.96	34.08	196.00	40.73
4. Marginal farmers	9	18.21	257.12	9.25	89.37	-	5.58	10.86	115.06	44.75
5. Pure tenants	13	54.96	769.44	19.50	99.45	40.30	7.80	152.67	319.72	41.55
6. Agricultural labourers	12	15.49	154.90	5.00	48.00	-	-	47.91	100.91	65.15
7. Non-agricultural workers with regular salaried employment	10	24.70	308.75	10.00	115.60	5.00	2.50	15.60	148.70	48.16
8. Non-agricultural casual workers	8	8.00	72.00	-	40.00	-	-	11.70	51.70	71.81
9. Artisanal and service households	2	2.50	20.00	-	12.00	-	-	1.20	13.20	66.00
Total	77	278.96	3643.31	120.43	753.89	92.30	41.81	284.31	1292.74	-
As percentage to the total production	-	-	-	3.31	20.69	2.53	1.15	7.80	35.48	-

Note: No: Number; HHs: Households; Q:Quantity; %: per cent

(Table continues on the following page)

Table 24 (continued).

Category of households	Q sold in the post harvest season (in bags)	As % age to the category's production	Q sold in the lean season (in bags)	As %age to the category's production	Marketable surplus (in bags)	As %age to the category's production	Average Q of marketed surplus per land operating HH (in bags)
1. Big farmers	145.00	16.73	566.58	65.38	711.58	82.11	142.31
2. Medium farmers	130.50	18.30	390.32	54.72	520.82	73.02	57.86
3. Small farmers	78.48	16.31	206.77	42.96	285.25	59.27	35.65
4. Marginal farmers	57.60	22.40	84.46	32.85	142.06	55.25	15.78
5. Pure tenants	132.60	17.23	317.12	41.21	449.72	58.45	34.59
6. Agricultural labourers	53.99	34.85	-	-	53.99	34.85	4.50
7. Non-agricultural workers with regular salaried employment	47.50	15.38	112.55	36.45	160.05	51.84	16.00
8. Non-agricultur casual workers	20.30	28.19	-	-	20.30	28.19	2.53
9. Artisanal and service households	6.80	34.00	-	-	6.80	34.00	3.40
Total	672.77	-	1677.80	-	2350.57	-	30.93
As percentage to the total production	18.47	-	46.05	-	64.52	-	-

Source: Estimates based on the field data (sample).

170 per bag) in comparison to the same in the post-harvest season (Rs.130 to 140 per bag). Some of the factors which accounted for this phenomenon were (a) the low paid-out costs of cultivation incurred by the farmers and (b) the long duration (3 to 6 months) storage of traditional paddy without any loss of weight and damage. The average quantity of marketable surplus generated per land operating household in the village was 30.93 bags. But, with the exception of the big, medium and small farmers and the pure tenants all other categories obtained either smaller or negligible quantities of marketable surplus per land operating household. In particular, the small marketable surpluses generated by the marginal farmers for whom cultivation provided the major source of income had implications for their further investments and incomes earned from traditional agriculture.

The data on changes in the distribution of total paddy between 1970-71 and 1985-86 (for the methodology adopted, see Appendix-3) are presented in Table 25. The table shows only the marginal improvements in the total absolute quantities of paddy either distributed or marketed between 1970-71 and 1985-86. Between these two periods the marketable surplus of paddy had gone up from 61.37 per cent to 64.52 per cent.[43] The small increase observed in the marketable surplus of paddy was brought about mainly by the small increase achieved in its per acre yield rate. While the absolute quantity of paddy allotted for seed purposes declined due to the declining area cultivated with paddy by the resident farmers the absolute quantity allotted for

Table 25 Changes in the Distribution of Total Paddy between 1970-71 and 1985-86 in Verkadu

Category of production and distribution	1970-71 Quantities (in bags of 80kgs each)	1970-71 As percentage to the total	1985-86 Quantities (in bags of 80kgs each)	1985-86 As percentage to the total
I. Production				
1. Total number of households operating land	76.00	-	77.00	-
2. Gross cropped area under paddy (in acres)	300.00	-	278.96	-
3. Average yield per acre (in bags)	10.00	-	13.06	-
Total production of paddy	3000.00	-	3643.31	-
II. Distribution				
1. As seed	131.25	4.37	120.43	3.31
2. For consumption	608.00	20.27	753.89	20.69
3. Payments to artisanal and service households	60.00	2.00	41.81	1.15
4. Payments to agricultural labourers: a) total	240.00	8.00	92.30	2.53
b) for casual labourers	150.00	-	42.30	-
c) for permanent servants	60.00	-	24.00	-
d) for cowherds	30.00	-	12.00	-
e) for migrant labourers	-	-	14.00	-
5. Payments towards land rent	119.70	3.99	284.31	7.80
6. Total distribution of paddy	1158.95	38.63	1292.74	35.48
7. Total marketable surplus of paddy	1841.05	61.37	2350.57	64.52

Source: Field surveys (purposive and sample).

consumption increased due to the increased population of the village. Both the absolute quantities of paddy and the shares of total paddy production obtained by the artisanal and service households and the agricultural labourers declined between 1970-71 and 1985-86. However, the declining share of total paddy production obtained by the artisanal and service households which were paid their annual wages in kind both in 1970-71 and 1985-86 need to be explained. It happened mainly because of their declining employment and real wage rates paid to them, consequent to the increased purchases of urban goods and services, especially by the adult population of the village and the non-agricultural regular salaried and casual workers who earned their incomes mainly in the urban areas. And the declining real wage rates and the increased proportion of wages paid in cash explained the declining share of total paddy production obtained by the agricultural labourers in the village over the years.

Sources of agricultural incomes

The estimated sources of agricultural incomes obtained by different categories of households (methodology adopted for the computations of agricultural and non-agricultural incomes is given in Appendix-4) in 1985-86 are provided in Table 26. The table shows that the incomes earned from the cultivation of owned lands provided the largest share (37.61 per cent) of total agricultural income followed by the cultivation of leased in lands (16.99 per cent). Thus, tenancy also provided a considerable proportion of total agricultural income generated in

Table 26 Sourcewise Estimates of Agricultural Incomes Earned by Different Categories in Verkadu 1985-86

(All in Rs.)

Category of households	Total no. of HHs	Agricultural incomes earned within the village from the: Cultivation of owned lands (on Cost C basis)	Cultivation of leased in land (on Cost C basis)	Rental income earned from the owned land	Rental income earned from the leased-out lands	Cultivation of common lands	Auctioning of fish & leaves available in ponds	Sale or use of palm products	Self-employment in agriculture
1. Big farmers	6	84793.32	-	16122.60	11068.20	3692.01	1200.00	-	6945.12
2. Medium farmers	9	70711.97	4348.96	13299.00	2355.60	3803.76	1000.00	-	6303.44
3. Small farmers	9	35000.00	14580.23	6559.80	1950.00	3929.64	1000.00	-	11998.63
4. Marginal farmers	9	17819.99	4421.39	3874.65	-	1221.38	-	-	3085.88
5. Pure tenants	13	7537.03	63186.04	1183.65	-	-	1500.00	5200.00	16375.18
6. Agricultural labourers	23	449.05	13790.89	101.40	-	-	-	-	5292.00
7. Non-agricultural workers with regular salaried employment	14	19463.14	4936.98	5099.25	-	-	-	-	3146.60
8. Non-agricultural casual workers	41	3608.96	3243.04	1214.85	-	-	-	-	1121.39
9. Artisanal and service households	4	2293.33	366.92	715.65	-	-	-	-	428.16
Total	128	241676.81	109174.45	48170.85	15373.80	12646.79	4700.00	5200.00	54696.40
As percentage to the total		37.61	16.99	7.50	2.39	1.97	0.73	0.81	8.51

(Table continues on the following page).

Table 26 (continued.) (All in Rs.)

Category of households	Owned bullock labour	Supply of non-labour owned inputs to agriculture other than owned land	Hiring out labour	Hiring out bullock	Agricultural income earned within the village	Agricultural income earned outside the village	Total agricultural income earned	As % age to the total	Average agricultural income earned per HH	House hold size	Per capita agricultural income
1. Big farmers	5312.19	17868.78	-	-	147002.22	6600.00	153602.22	23.91	25600.37	7.67	3337.73
2. Medium farmers	5503.33	14949.98	-	-	122276.04		122276.04	19.03	13586.23	6.55	2074.23
3. Small farmers	5861.65	9156.70	-	675.00	91011.67	-	91011.67	14.16	10112.41	6.44	1570.25
4. Marginal farmers	775.17	3960.67	1912.50	517.50	37589.13	-	37589.13	5.85	4176.57	4.11	1016.19
5. Pure tenants	4365.10	11541.60	3256.50	1040.00	115185.10	-	115185.10	17.93	8860.39	4.54	1951.63
6. Agricultural labourers	494.75	154.90	40032.19	-	60315.18		60315.18	9.39	2622.40	3.56	736.63
7. Non-agricultural workers with regular salaried employment	869.96	5887.74	-	-	39403.67	-	39403.67	6.13	2814.55	6.00	469.09
8. Non-agricultural casual workers	303.90	80.00	9752.26	-	19324.40	-	19324.40	3.01	471.33	4.49	104.97
9. Artisanal and service house holds	-	-	-	-	3804.06	-	3804.06	0.59	951.01	4.50	211.33
Total	23486.05	63600.37	54953.45	2232.50	635911.47	6600.00	642511.47	100.00	5019.62	4.90	1024.41
As percentage to the total production	3.66	9.90	8.55	0.35	98.97	1.03	100.00	-	-	-	-

Source: Estimates based on the field data (sample).

the village in 1985-86. The rental income earned from the cultivation of owned land (i.e., the imputed rental value of owned land) accounted for 7.50 per cent of total agricultural income. The self-employment and hired employment of the resident labourers contributed in equal proportions (8.51 per cent and 8.55 per cent, respectively) to the total agricultural income. Though the number of days of employment provided to the hired labourers in the per acre cultivation of a major crop like paddy was double that of the same provided to the self-employed (i.e., to the family labourers) they came to earn the same proportions of total agricultural income. This happened mainly because of the sharing of hired employment by the resident and non-resident casual agricultural labourers in the village.

The table shows that the use of many owned inputs (i.e., land, seed, labour and domestic manures) in agriculture put together earned a little less than one-third (29.57 per cent) of the total agricultural income. The common property resources (CPRs) in the village (such as the cultivation of common lands and the sale on the auctions of fish, leaves and palm products) provided for 3.51 per cent of the total agricultural income. And the categories such as the agricultural labourers, non-agricultural regular salaried and casual workers and artisanal and service households did not earn any incomes from the CPRs available within the village. Their preoccupation with the non-agricultural occupations and the negligible ownerships of livestock and agricultural implements came very much in their way of utilising CPRs. The agricultural income earned from outside

the village, especially by the big farmers accounted hardly for 1.03 per cent. Whereas the annual per household agricultural income earned in the village worked out to Rs.5019.62 the per capita annual agricultural income worked out to Rs.1024.41. Across the categories in comparison to the village level per household and per capita annual agricultural incomes earned while the big, medium and small farmers and the pure tenants earned more all other categories earned much less. The Gini coefficient calculated for the concentration of agricultural income among the households of the village revealed 0.5663. And this is not much different from the concentration of land ownership in the village where the Gini coefficient showed 0.5512 in 1985-86. Hence the concentration of land ownership had not led to further concentration of agricultural income among the households of the village.

Chapte. V

Non-agrarian Economy of the Village

To begin with this chapter tries to trace the factors which account for the diversification of the village economy over the years. Then it proceeds to examine the contribution of non-agricultural employment and incomes to the village economy in 1985-86. In this context the role of growth centres (rural, urban and industrial) which came up in the neighbourhoods of Verkadu has also been examined. One peculiar feature of this village economy is that though there developed no non-agricultural occupations within the village the workers of this village took maximum advantage of the developments in the external economy. In addition to these aspects this chapter include the discussions on income and indebtedness of the households, implementation of public programmes and the levels of poverty in the village.

The process of diversification of the village economy

At this point it is necessary and useful to identify the factors which led to the process of diversification of the village economy during the last 15 years. Some of the external factors which facilitated the diversification of the village economy had already been discussed in Chapter II. Hence we will concentrate on the identification of the factors relating to the internal development of the village, especially its agricultural development.

1. The increased landlessness in the village consequent to the sale of all the lands by 15 households led to their change of

agricultural occupations in favour of non-agricultural occupations available outside the village.

2. The continued cultivation of less labour-intensive crops led to the release of a part of the growing male agricultural labour force in favour of non-agricultural occupations available outside the village.

3. The negligible increases observed with respect to both extensive and intensive cultivation of crops restricted the growth of employment opportunities for the growing number of agricultural labourers and compelled them to leave their agricultural occupations.

4. The long lean agricultural season brought about mainly by lack of supplementary sources of irrigation affected the regular employment, incomes and the real wage rates obtained by the male casual agricultural labourers who were in turn forced to substitute the same by entering into non-agricultural occupations available outside the village.

5. The changing labour processes associated with the traditional pattern of agriculture such as the loss of employment by the permanent farm servants, cowherds, irrigation workers and field guards also contributed to the diversification of the village economy over the years.

6. The absence of state intervention either in agricultural development of the village or in the household development of the weaker sections also necessitated the landless to leave their

original agricultural occupations in favour of non-agricultural occupations.

7. Very high occupational mobility found among the demographically dominant upper caste Naickers and the very high level of literacy (59.65 per cent in the village in 1985-86 as against the taluk level literacy of only 31.83 per cent in 1981) achieved in the village (in Table 3.1) had all helped in the diversification of the village economy.

However, the diversification of the village economy was not associated with the development of non-agricultural sector within the village. It only led to the increased integration of the village economy with the wider economy for its own development. As a consequence, about one-third of the total village workforce came to depend on the external economy for their livelihood and survival. Hence the external factors came to influence the village economy and its levels of living to a considerable extent over the years. Now we shall move on to the analysis of non-agricultural employment and incomes earned by different categories of households in the village in the mid-80s.

As has already been observed there were 60 persons engaged in different non-agricultural occupations by the mid-80s. Out of 60 persons while 5 belonged to the artisanal and services households the remaining 55 belonged to the non-agricultural regular salaried (14) and casual workers (41) groups. Out of the 41 non-agricultural casual workers only one person was engaged

in running a petty shop in the village (as self-employed in non-agricultural occupations who is also included in the casual worker category for the convenience of analysis); the remaining 40 casual workers and 14 regular salaried workers were working outside the village but living in the village. Again, out of the total non-agricultural workforce of 60 only 2 were female workers who were employed as casual workers (as sweepers) by the Southern Railway in 1985-86. While most of the non-agricultural casual workers worked in urban informal sector and earned a daily wage rate of Rs.10 to 15 each which was often lower than even the male wage rate paid in agriculture the regular salaried workers earned a monthly income in the range of Rs.600 to 1,000 in 1985-86. Of course, most of the salaried persons were working in low paid jobs such as gangmen in railways, peons and attenders, as security men and workers in private companies and as vehicle drivers and gardeners. And most of these persons were educated either below or upto school final.

The estimates of non-agricultural incomes earned by different categories are presented in Table 27. The table shows that of the estimated total non-agricultural income of Rs.4,05,939.23 while regular salaried employment accounted for 42.96 per cent the casual worker occupations accounted for 44.05 per cent. Hence these two sources themselves accounted for the largest proportion (87.01 per cent) of total non-agricultural income. The remaining 12.99 per cent of total non-agricultural income was provided by the part-time non-agricultural occupations. The non-agricultural occupations (almost

Table 27 Source-wise Estimates of Non-agricultural Incomes Earned by Different Categories in Verkadu, 1985-86

(All in Rs.)

Category of households	Total no. of HHs	Sources of non-agricultural incomes within the village: Rearing live-stock	Money-lending	Trade	Services	Govt. employment & pensions	Non-agricultural income earned within the village
1. Big farmers	6	1873.75	15000.00	-	-	6000.00	22873.75
2. Medium farmers	9	2080.16	-	-	-	4200.00	6280.16
3. Small farmers	9	2017.50	-	-	-	-	2017.50
4. Marginal farmers	9	473.12		-		-	473.12
5. Pure tenants	13	744.70		-		-	744.70
6. Agricultural labourers	23			-	-	1000.00	1000.00
7. Non-agricultural workers with regular salaried employment	14	725.00		-	-	-	725.00 174400
8. Non-agricultural casual workers	41			3600.00		-	3600.00
9. Artisanal and service households	4				5435.30	-	5435.30
Total	128	7914.23	15000.00	3600.00	5435.30	11200.00	43149.53
As percentage to the total		1.95	3.69	0.89	1.34	2.76	10.63

(Table continues on the following page)

Table 27 (continued).

(All in Rs.)

Category of households	Sources of non-agricultural incomes outside the village: Regular salaried employment	Casual labour occupations	Services	Non-agricultural income earned from outside the village	Total non-agricultural income earned	As %age to the total	Average non-agricultural income earned per HH in 85-86	Household size	Per capita non-agricultural income
1. Big farmers	-	10000.00	-	10000.00	32873.75	8.10	5478.95	7.67	714.33
2. Medium farmers	-	-	-	-	6280.16	1.55	697.79	6.55	106.53
3. Small farmers	-	-	-	-	2017.50	0.50	224.16	6.44	34.80
4. Marginal farmers	-	5600.00	-	5600.00	6073.12	1.50	674.79	4.11	164.18
5. Pure tenants	-	4500.00	-	4500.00	5244.70	1.29	403.44	4.54	88.86
6. Agricultural labourers	-	8625.00	-	8625.00	9625.00	2.37	418.47	3.56	117.54
7. Non-agricultural workers with regular salaried employment	174400.00	-	-	174400.00	175125.00	43.14	12508.93	6.00	2084.82
8. Non-agricultural casual workers	-	150100.00	-	150100.00	153700.00	37.86	3748.78	4.49	834.91
9. Artisanal and service households	-	-	9564.70	9564.70	15000.00	3.69	3750.00	4.50	833.33
Total	174400.00	178825.00	9564.70	362789.70	405939.23	100.00	3171.40	4.90	647.22
As percentage to the total	42.96	44.05	2.36	89.37	100.00	-	-	-	

Source: Field survey (census and sample).

Table 28 Agricultural and Non-agricultural Incomes: Categorywise Distribution in Verkadu 1985-86

Category of households	Total no. of HHs	Agricultural income (in Rs.)	As %age to the category's total income	Non-agricultural income (in Rs.)	As % age to the category's total income	Total income earned by the category (in Rs.)	As %age to the total village income	Average income earned per HH (in Rs.)	House-hold size	Per capita income earned in 1985-86 (in Rs.)
1. Big farmers	6	153602.22	82.37	32873.75	17.63	186475.97	17.79	31079.33	7.67	4052.06
2. Medium farmers	9	122276.04	95.11	6280.16	4.89	128556.20	12.26	14284.02	6.55	2180.77
3. Small farmers	9	91011.67	97.83	2017.50	2.17	93029.17	8.87	10336.57	6.44	1605.05
4. Marginal farmers	9	37589.13	86.09	6073.12	13.91	43662.25	4.16	4851.36	4.11	1180.38
5. Pure tenants	13	115185.10	95.65	5244.70	4.35	120429.80	11.49	9263.83	4.54	2040.49
6. Agricultural labourers	23	60315.18	86.24	9625.00	13.76	69940.18	6.67	3040.87	3.56	854.18
7. Non-agricultural workers with regular salaried employment	14	39403.67	18.37	175125.00	81.63	214528.67	20.46	15323.47	6.00	2553.91
8. Non-agricultural casual workers	41	19324.40	11.17	153700.00	88.83	173024.40	16.50	4220.11	4.49	939.89
9. Artisanal and service households	4	3804.06	20.23	15000.00	79.77	18804.06	1.79	4701.01	4.50	1044.67
Total	128	642511.47	-	405939.23	-	1048450.70	100.00	8191.02	4.90	1671.64
As percentage to the total		61.28	-	38.72	-	100.00	-	-	-	-

Source: Estimates based on the field data (census and sample).

agricultural incomes were associated with a far lower concentration of total incomes among the households of the village in 1985-86.[44]

Whereas the per household total income earned in the village in 1985-86 worked out to Rs.8,191.02 the per capita total income worked out to Rs.1,671.64. And this was far lower (by 37.48 per cent) compared to the state level per capita income of Rs.2,674 in 1985-86.[45] Among the categories, in comparison to the village level per capita income whereas the big, medium and the pure tenants and the non-agricultural workers with regular salaried employment earned more all other categories earned lower per capita incomes both from agricultural and non-agricultural occupations in 1985-86. The small farmers earned only slightly lower per capita income in comparison to the village level per capita income. If we take the national poverty-line expenditure of Rs.15 per capita, per month at 1960-61 prices and correct the same for the year 1985-86 by using the Consumer Price Index for Agricultural Labourers (CPIAL) relating to Tamil Nadu[46] then we get either Rs.80.55 per capita, per month or Rs.966.60 per capita, per year. By applying this current poverty-line expenditure to the per capita annual incomes calculated in the table we can observe that the categories of agricultural labourers and the non-agricultural casual workers were the most poverty prone in the village in 1985-86. However, we will come to the actual calculations of poverty towards the end of this chapter.

Growth centres and the weaker sections

By the mid-80s Verkadu had the opportunity to benefit from the rural, urban and industrial growth centres which came up in its neighbourhoods. While the rural growth centres are represented by the modernisation of agriculture in some of the neighbouring villages of Enadimelpakkam and Ayanallur the urban growth centres are represented by the increased urbanisation of the nearby Gummidipundi town and the Madras Metropolitan City. The industrial growth centres are represented by the setting up of medium scale industries at Gummidipundi in the 1980s by the State Industries Promotion Corporation of Tamil Nadu (SIPCOT) and the development of large scale industries in the Madras Metropolitan Area

Even if rural growth centres have come up within a short distance of 2 to 3 kilometres Verkadu agricultural workers could not take advantage of them because their number is not only small but also they are less organised to perform any contract labour jobs in the neighbouring villages. Consequently, the neighbouring village cultivators employed the migrant labourers who came in groups from far away places, especially at the time of paddy harvests.

Instead of taking advantage of modern agricultural operations in the neighbouring villages a few adult male agricultural labourers of Verkadu always tried to secure some non-agricultural employment outside the village during the lean seasons. In fact, they secured some employment in construction activities at Gummidipundi during 1980-84 when the sheds for

medium industries were put up there. However, not only the agricultural labourers failed to take advantage of rural growth centres but also the other categories of agricultural workers too. For instance, the big farmers who acquired some capital from traditional agriculture preferred to invest the same in money-lending and civil contracts available in the urban areas rather than purchasing agricultural lands in the neighbouring villages where agriculture became more profitable for them during the recent years. Hence, the rural growth centres have not benefited the backward agricultural village of Verkadu and its weaker sections either by the movement of labour or by the movement of capital into them.

Though the setting up of medium scale industries at Gummidipundi provided some casual labour employment to the workers of Verkadu in their construction phase they have not provided any regular salaried employment to them (workers) in their production phase. The reasons given are the lack of skills on the part of Verkadu workers to participate in industrial activities and the apathy of industrial managements to recruit the local labour for the fear of organised labour union activity on them. Consequently, the industrial units of Gummidipundi employed many workers who came from far away places. In this, they are also aided by the rapid transport systems which brought many workers from the neighbouring city and towns everyday. And only a very few workers of Verkadu could secure jobs in the industrial establishments of Madras city. Thus, on the whole, the industrialisation of neighbourhoods went without providing

the expected benefits to the backward agricultural village of Verkadu and its weaker sections. If anything, such industrial growth centres have benefited mainly the urban workers rather than the rural workers.

Of the three types of growth centres, the urban growth centre has produced positive effects for Verkadu and to its weaker sections. The benefits of these centres have been mainly to provide employment and incomes to the workers of Verkadu who left their agricultural jobs over the years. In 1985, out of 60 non-agricultural workers while 14 were engaged in some government jobs, 41 were engaged in some casual jobs available in the urban informal sector. And all these workers commuted to their work places while living in the village.

Though urban growth centres provided some employment the pattern of such employment differed across the socio-economic groups in the village. Whereas the workers belonging to the land owning upper caste households with some education and skills secured high wage paid urban employment (such as regular salaried jobs) the illiterate workers belonging to the landless, low caste households secured the low wage paid casual jobs in the urban informal sector. Further, this urban employment is mainly taken advantage of by the male workers of Verkadu rather than by its female workers. This is because while the male workers of Verkadu are highly mobile the female workers are very immobile for many social reasons. Hence the urban growth centres have benefited the workers differently based on their asset

ownerships, prior socio-economic status, skill and educational levels and the sex of the persons.

Thus, of all the three types of growth centres only the urban growth centre has benefited the backward agricultural village of Verkadu and its weaker sections. Of course, their benefits across the socio-economic groups differed depending on their (workers) initial endowments. It is also worth noting the fact that the rural and industrial growth centres have failed to benefit the weaker sections of backward villages in any noticeable way and hence cannot rejuvanate the neighbouring less developed economies. Moreover, the absorption of growth impulses created in the economy depended on the minimum of asset ownerships, prior socio-economic status and high skill and educational levels attained which are all beyond the reach of landless labour households in Verkadu even in the mid-80s. Hence, there is no easy way of benefits of growth centres flowing to the weaker sections living in a backward village like Verkadu.

Public intervention in private consumption

The distribution of essential consumer items at subsidised prices among the households by the fair price shop has been the only programme implemented by the government[47] in the village right from the mid-70s. We collected the census data on the quantities of different items purchased per month from the fair price shop by different categories of households in the village in 1985-86. The same are presented in Table 29. The table reveals that in 1985-86 on an average the households of this

Table 29 Categorywise Purchases of Essential Consumer Items (per month) from the Fair Price Shop in Verkadu in 1985-86

Category of households	No. of HHs	Number of persons	Rice (in kgs) Total Q	Rice Average per household	Rice Per capita per month	Sugar (in kgs) Total Q	Sugar Average per HH	Sugar Per capita per month	Keorsene (in litres) Total Q	Keorsene Average per HH	Keorsene Per capita per month
1. Big farmers	6	46	-	-	-	16	2.67	0.35	21	3.50	0.46
2. Medium farmers	9	59	-	-	-	22	2.44	0.37	29	3.22	0.49
3. Small farmers	9	58	7	0.78	0.12	15	1.67	0.26	25	2.78	0.43
4. Marginal farmers	9	37	5	0.55	0.13	8	0.89	0.22	25	2.78	0.67
5. Pure tenants	13	59	20	1.54	0.34	16	1.23	0.27	41	3.15	0.69
6. Agricultural labourers	23	82	85	3.69	1.04	18	0.78	0.22	63	2.74	0.77
7. Non-agricultural workers with regular salaried employment	14	84	46	3.28	0.55	27	1.93	0.32	52	3.71	0.62
8. Non-agricultural casual workers	41	184	118	2.88	0.64	55	1.34	0.30	101	2.46	0.55
9. Artisanal and service households	4	18	10	2.50	0.55	3	0.75	0.16	9	2.25	0.50
Total	128	627	291	2.27	0.46	180	1.41	0.29	366	2.86	0.58

Note: H.Hs: Households; Q: Quantity.
Source: Field survey (census).

village bought per month 2.27 kgs of rice per household, 290 grams of sugar per capita, and 2.86 litres of kerosene per household. These figures compared with the government's monthly prescriptions of 12 kgs of rice per household, 450 grams of sugar per capita and 2 litres of kerosene per household[48] reveals that the quantities of rice and sugar distributed by the fair price shop in the village were very low. Since the rice prices were subsidised (as against the open market price of Rs.3.50 per kg the fair price shop sold the same at Rs.1.75 per kg in 1985-86)[49] to the extent of 50 per cent by the government to the consumers, the wage earners like agricultural labourers and non-agricultural casual workers had to lose much economically by buying the same in the open market at higher prices. This situation was brought about by opening the fair price shop in the village only for one or two days in a month which did not enable the households, especially the wage earners to buy all the prescribed quantities of rice and sugar. Further, our field enquiries revealed that even these inadequate quantities of rice were sold by the fair price shop only for a few months in a year. And large proportions of total rice and sugar meant for distribution by the fair price shop were sold in the open market at higher prices for a profit by the person in charge of the fair price shop who was no other than a close relative of the panchayat president. Such sales of "fair price" commodities in the open market by the shop managers have also been noticed in some other villages of Tamil Nadu.[50] Thus, within Verkadu internal political processes had also worked against the weaker

sections benefiting from the public programmes implemented in the village in the mid-80s.

Credit

The incidence of borrowing among the households of Verkadu is given in Table 30 (procedures adopted for the estimates of borrowing by purpose and source are given in Appendix-5). As the table shows an estimated 78.12 per cent of total households was in debt in 1985-86. The estimated average total debt amount outstanding per indebted household in the village worked out to Rs.3,490.38. Across the categories it was the group of medium farmers who borrowed the maximum amount followed by the small farmers and non-agricultural workers with regular salaried employment. The big farmers who were already found to be engaged in money-lending had also borrowed considerable amounts, the motives of which were entirely different. They borrowed largely at lower rates of interest from banks by pledging their jewels and lent the same at higher interest rates to others. So borrowing was done mainly for profits. We will come to the sources and purposes of borrowing soon.

Table 31 provides the data on purposes of borrowing over the categories in 1985-86. The table shows that out of a total estimated borrowing of Rs.3,60,870; 70.65 per cent went for unproductive purposes. The remaining 29.35 per cent only went for productive purposes. Thus, a large proportion of total debt amount was taken for unproductive purposes. This was the same

Table 30 Incidence of Borrowing across Different Categories in Verkadu in 1985-86

Category of households	Total no. of HHs	No. of sample HHs	No. of sample HHs in debt	Estimated number of HHs in debt	Estimated average total debt amount outstanding per indebted HH (in Rs.)
1. Big farmers	6	4	4	6	4000.00
2. Medium farmers	9	4	4	9	5875.00
3. Small farmers	9	5	4	7	5325.00
4. Marginal farmers	9	8	6	7	2868.33
5. Pure tenants	13	8	6	10	3808.33
6. Agricultural labourers	23	15	13	20	1507.69
7. Non-agricultural workers with regular salaried employment	14	11	9	11	4277.77
8. Non-agricultural casual workers	41	7	5	29	3700.00
9. Artisanal and service households	4	3	1	1	4050.00
Total	128	65	52	100	3490.38
As percentage to the total	-	-	-	78.12	-

Source: Estimates based on the field data (sample).

Table 31 Estimated Amounts of Borrowing by Purpose among Different Categories in Verkadu in 1985-86

(All in Rs.)

Category of households	Total no. of HHs	Estimated amount of borrowing	Purposes of borrowing: Productive	Purposes of borrowing: Unproductive	Estimated average productive debt per HH	Estimated average unproductive debt per HH	Estimated average total debt per HH	Estimated average total income earned per HH	Per HH income to debt ratio
1. Big farmers	6 (4.69)	24000 (6.65)	24000 (100.00)	--	4000.00	--	4000.00	31079.33	7.77
2. Medium farmers	9 (7.03)	52875 (14.65)	9000 (17.02)	43875 (82.98)	1000.00	4875.00	5875.00	14284.02	2.43
3. Small farmers	9 (7.03)	37275 (10.33)	17500 (46.95)	19775 (53.05)	1944.44	2197.22	4141.66	10336.57	2.49
4. Marginal farmers	9 (7.03)	20078 (5.56)	8167 (40.68)	11911 (59.32)	907.44	1323.44	2230.88	4851.36	2.17
5. Pure tenants	13 (10.16)	38083 (10.55)	17250 (45.30)	20833 (54.70)	1326.92	1602.54	2929.46	9263.83	3.16
6. Agricultural labourers	23 (17.97)	30154 (8.36)	4846 (16.07)	25308 (83.93)	210.69	1100.35	1311.04	3040.87	2.32
7. Non-agricultural workers with regular salaried employment	14 (10.94)	47055 (13.04)	10389 (22.08)	36666 (77.92)	742.07	2619.00	3361.07	15323.47	4.56
8. Non-agricultural casual workers	41 (32.03)	107300 (29.73)	12760 (11.89)	94540 (88.11)	311.22	2305.85	2617.07	4220.11	1.61
9. Artisanal and service households	4 (3.12)	4050 (1.12)	2000 (49.38)	2050 (50.62)	500.00	512.50	1012.50	4701.01	4.64
Total	128	360780	105912	254958	827.43	1991.86	2819.29	8191.02	2.90
As percentage to the total	--	--	29.35	70.65	--	--	--	--	--

Note: While figures in brackets in columns 1 and 2 are percentages to their respective village totals the figures in brackets in columns 3 and 4 are percentages to their respective category's total debt amount.

Source: Estimates based on the field data (sample).

even across the categories. However, this pattern of borrowing was an obvious consequence of the low per acre paid-out cost of cultivation incurred on crop production and lack of any innovations in traditional agriculture. But the calculations of per household income to debt ratios both at the village and among the categories revealed no debt burdens (i.e., ratios are above one) experienced by any category of households in the village. In other words, they kept their borrowings well below their household incomes earned in 1985-86. Hence borrowing was resorted to (with the exception of big farmers who borrowed for speculative profits and for investments in some non-agricultural occupations like civil contracts) mainly as an adjustment mechanism between the incomes and expenditures currently rather than as an investment mechanism between the present and the future incomes.

The estimated sources of borrowing by different categories of households in 1985-86 are presented in Table 32. The table shows that the largest proportion of total borrowing came from the high interest rate (36 per cent) charging professional money-lenders, followed by the equally high interest rate (36 to 48 per cent) charging employers in non-agricultural occupations. The low interest rate (10 per cent and less) charging banks and employer organisations together provided about one-fifth (19.28 per cent) of the total debt amount. But the high income earning big farmers and non-agricultural workers with regular salaried employment benefited the most from such low interest rate charging institutional sources. In fact, the latter category was

Table 32 Estimated Amounts of Borrowing by Source across Different Categories in Verkadu in 1985-86

(All in Rs.)

Category of households	Total number of HHs	Sources of borrowing: Banks	Employer organisa-tions	Employers in non-agri-cultrual occupations	Landlords	Moneylenders	Merchants	Others (including friends & relatives)	Estimated amount of borrowing by each category
1. Big farmers	6	16000 (66.67)	--	--	--	4000 (16.66)	--	4000 (16.66)	24000 (100.00)
2. Medium farmers	9	20000 (37.82)	--	--	10000 (18.91)	15000 (28.37)	5000 (9.46)	2875 (5.44)	52875 (100.00)
3. Small farmers	9	--	--	--	5000 (13.41)	25000 (67.07)	6000 (16.10)	1275 (3.42)	31275 (100.00)
4. Marginal farmers	9	--	--	--	4778 (23.80)	13300 (66.24)	1000 (4.98)	1000 (4.98)	20078 (100.00)
5. Pure tenants	13	--	--	--	12000 (31.51)	18000 (47.27)	7000 (18.38)	1083 (2.84)	38083 (100.00)
6. Agricultural labourers	23	--	--	--	3000 (9.95)	26000 (86.22)	--	1154 (3.83)	30154 (100.00)
7. Non-agricultur-al workers with regular salaried employment	14	--	33555 (71.31)	--	3000 (6.38)	6500 (13.81)	--	4000 (8.50)	47055 (100.00)
8. Non-agricultural casual workers	41	--	--	90000 (83.88)	--	12300 (11.46)	--	5000 (4.66)	107300 (100.00)
9. Artisanal and service house-holds	4	--	--	--	--	4050 (100.00)	--	--	4050 (100.00)
Total	128	36000	33555	90000	37778	124150	19000	20387	360870
As percentage to the total		9.98	9.30	24.94	10.47	34.40	5.26	5.65	100.00

Note: Figures in bradckets are percentages to the respective categor's total debt amount.
Source: Estimates based on the field data (sample).

encouraged to borrow because the employer organisations provided very low cost (6 to 8 per cent rate of interest) credit for house constructions. With the exception of these two categories all other categories borrowed mainly from the high interest rate charging private sources. Among the categories it is important to note that while agricultural labourers borrowed largely from money-lenders by pledging their jewels and durables non-agricultural casual workers borrowed largely from their employers by pledging their labour in advance. And this had implications for the latter category's wage rates received in non-agricultural occupations outside the village. The table also shows a negligible proportion (5.26 per cent) of total debt amount borrowed from the merchants who were largely non-residents. But, even this negligible activities of merchant-creditors in the village agrarian economy were made possible by the introduction of cash crops, especially the groundnut in the early 80s. However, our field enquiries revealed that such negligible activities of merchants had not influenced the product market and the farmers continued to obtain largely the open market prices prevailing for the cash crops outside the village.

Levels of poverty

The estimated levels (or head-count ratios) of different types of poverty prevailing in the village in 1985-86 are presented in Table 33 (for the procedures of estimation, see Appendix-6). While for the calculations of absolute poverty we have taken the income which is equivalent to the already cited

Table 33 Sample and Estimated Numbers of Households and Persons in Poverty among Different Categories in Verkadu in 1985-86

Category of households	No. of sample HHs	No. of sample persons	Sample: Absolute poverty No.of HHs	Absolute poverty No.of persons	Relative poverty No.of HHs	Relative poverty No.of persons	Abject poverty No.of HHs	Abject poverty No.of persons
1. Big farmers	4	22	--	--	--	--	--	--
2. Medium farmers	4	26	--	--	1	4	--	--
3. Small farmers	5	25	--	--	3	17	--	--
4. Marginal farmers	8	35	4	20	8	35	--	--
5. Pure tenants	8	40	2	12	4	18	--	--
6. Agricultural labourers	15	57	11	46	15	57	1	6
7. Non-agricultural workers with regular salaried employment	11	70	--	--	1	5	--	--
8. Non-agricultural casual workers	7	39	5	31	6	34	--	--
9. Artisanal and service households	3	17	2	13	3	17	--	--
Total	65	331	24	122	41	187	1	6
As percentage to the total		--	--	--	--	--	--	--

(Table continues on the following page).

Table 33 (continued).

Category of households	Total no.of HHs	Total no.of persons	Estimates: Absolute poverty No.of HHs	Absolute poverty No. of persons	Relative poverty No.of HHs	Relative poverty No.of persons	Abject poverty No. of HHs	Abject poverty No. of persons	Percentage of category's population in absolut poverty
1. Big farmers	6	46	--	--	--	--	--	--	--
2. Medium farmers	9	59	--	--	2.25	9.07	--	--	--
3. Small farmers	9	58	--	--	5.40	39.44	--	--	--
4. Marginal farmers	9	37	4.50	21.14	9.00	37.00	--	--	57.13
5. Pure tenants	13	59	3.25	17.70	6.50	26.55	--	--	30.00
6. Agricultural labourers	23	82	16.87	66.17	23.00	82.00	1.53	8.63	80.69
7. Non-agricultural workers with regular salaried employment	14	84	--	--	1.27	6.00	--	--	--
8. Non-agricultural casual workers	41	184	29.28	146.25	35.14	160.41	--	--	79.48
9. Artisanal and service house holds	4	18	2.67	13.76	4.00	18.00	--	--	76.44
Total	128	627	56.57	265.02	86.56	378.47	1.53	8.63	--
As percentage to the total	--	--	44.19	42.26	67.62	60.36	1.20	1.38	--

Source: Estimates based on the field data (sample).

current poverty-line expenditure of Rs.966.60 per capita, per year for the calculations of abject poverty we have taken half of this amount of Rs.483.30 in 1985-86. And for the calculations of relative poverty we have taken the village level per capita annual income of Rs.1671.64 (in Table 28) as the cut-off point.

The table shows that an estimated 42.26 per cent of the total village population was in absolute poverty in 1985-86. In the same year while 60.36 per cent of the total village population was in relative poverty a mere 1.38 per cent of them was in abject poverty. In comparison to the head-count ratios of rural poverty in Tamil Nadu[51] in 1983 the absolute poverty prevailing (at the state level it was 39.94 per cent) in the village was slightly higher while the relative and abject poverty levels (at the state level they respectively showed 64.91 per cent and 4.42 per cent) were slightly lower. Over the categories as has already been indicated the absolute poverty was very much concentrated in the categories of agricultural labourers and non-agricultural casual workers and artisanal and service households in the village. And in comparison to the village level absolute poverty whereas the marginal farmers and the already mentioned categories suffered from the higher levels of poverty the pure tenants experienced only the lower level of absolute poverty in the mid-80s. The categories of big, medium and the small farmers did not suffer from absolute poverty.

Chapter VI

Summary and Conclusions

The above discussions led us to conclude that the traditional pattern of agriculture practised in Verkadu could not absorb the growing labour force, especially in the 80s. It also failed to provide enough employment opportunities for the remaining landless agricultural labourers, more particularly to the females. The traditional agriculture also could not sustain the employment of permanent farm servants, cowherds, field guards and the irrigation workers who were earlier paid their annual wages in kind. Hence, by the mid-80s many of them were thrown out of their `jobs. Further, the declining jajmani system (payment of fixed annual wages in kind) associated with the increased demand for urban manufactured goods and services had reduced the employment and incomes of artisanal and service households. As a result of all these, the groups of agricultural labourers and the artisanal and service households had to suffer from high levels of absolute poverty in the mid-80s.

But traditional agriculture conferred some benefits on some other groups of households which owned the required agricultural assets such as land and livestock and family labour. These groups included the big, medium and small farmers and the non-agricultural workers with regular salaried employment and the pure tenants who leased in the large extents of lands more or less on a permanent basis that too at favourable terms and conditions. They not only raised crops efficiently but also

enhanced their income earnings by diversifying their cropping patterns over the years. Besides, their increased access to CPRs and public programmes had greatly augmented their income levels. By contrast, the marginal farmers who lacked agricultural assets and family labour could not earn adequate incomes so as to escape from high levels of absolute poverty. Thus, asset ownerships and family labour largely determined the benefits of traditional agriculture.

The inability of traditional agriculture both to absorb the growing labour force and to provide adequate employment to the remaining labourers led to the diversification of the economy with the village taking advantage of the opportunities available in its neighbourhoods. This is also brought about by the non-development of any worthwhile non-agricultural occupations within the village. But the diversification process has benefited mainly the adult male workers of the village rather than the female workers who are occupationally immobile. Further, even among the male non-agricultural workers only those who owned some assets and acquired some education and skills and belonged to the high castes could secure high wage paid urban employment. And the non-agricultural casual workers who did not own even the minimum of assets and lacked education and skills and largely belonged to the low castes could secure only the low wage paid casual employment in the urban informal sector. Hence the diversification process is very specific to sex, skills, educational levels, resource endowments and socio-economic status

of households in the village. As a consequence of such a specificity of diversification process the non-agricultural casual workers had to suffer from a higher level of absolute poverty in comparison to other groups in the village in the mid-80s.

Despite proximity to the rural and industrial growth centres Verkadu village and its weaker sections did not benefit much from them. And it is only the urban growth centre which has mainly benefited the workers of the village. But as has already been said the benefits of such urban growth centres depended on the resource ownerships, educational levels and the socio-economic status of the households. Hence there is no automatic flow of benefits of development to the weaker sections in the village. And, they had to face many impediments in the process of benefit realisation. Thus, it is finally the minimum of asset ownerships which enabled the households to absorb the growth impulses created in the economy.

APPENDIX 1

Methodology Adopted in the Collection of Data on Land Transfers

Although some studies have collected the data on land transfers from the registration documents provided by the sub-registrar's offices at the taluk level the accessibility to them has not been easy in all places and for all research scholars. In our specific context of Gummidipundi taluk we had to face an additional problem of its bifurcation from the old Ponneri taluk in the 1970s. And this came in the way of transferring all the relevant land records from the old to the new taluk office even till the mid-80s. Further, even if the land registration documents are available it is not possible to collect all the data on land transfers because some of them took place without registrations in the villages.

In the face of non-availability of land registration documents we have identified the alternative source of information from the village land records. The information on land transfers is noted in 10-1-Chitta and Adangal of the village relating to the years 1970-71 to 1985-86 by the village accountant upto the early 80s and by the Village Administrative Officers (VAO) thereafter. These records provided not only the lands owned by the individuals but also the extent of lands transferred between them in different years. This work is being done (both by the village accountants and the V.A.Os in their different periods of office) in order to compute the land tax amounts due from land owners in the village. If during the

course of a year there occurred a land transfer between the two individuals belonging to two different households the V.A.O. in his land records deducts the extent of land sold from the total extent of land owned by the seller and adds the same to the total land ownership of the buyer for tax collection purposes from that year onwards. Normally, the land tax amounts are collected from the heads of the households even if the lands are owned collectively by different members of the household. Hence the VAO keeps track of changes in total land ownerships of different households in the village. Even if lands are sold to non-residents or purchased from them, the VAO immediately corrects the total land owning account of the households in the village. This work is done rather promptly because the sellers of lands refuse to pay the taxes from the year of sales. And the VAO is forced to collect the same from the purchasers of land from the year of land transactions. The same thing happened even with respect to the lands transferred but not registered. This fact is brought to the notice of the VAO either by the seller or buyer of the land immediately after the transaction in order to correct their tax dues.

In the process of data collection on land transfers from the Village records we were substantially helped by the village worker (Thalaiyari) and ex-village officials such as Village Munisiff and Karnam (accountant) in the identification of sellers and buyers and their households in the village. Further, we have cross-checked the official data with the transactors of lands

themselves in the village. Though we have not tried to collect the data on the extents of lands transferred between residents and non-residents our limited purpose of collecting the same type data for the resident households is well-served by this methodology.

APPENDIX 2

Note on the Calculations of Costs of Cultivation in Verkadu Agriculture

In the calculations of cost of cultivation on the basis of different concepts viz., A1, A2, B and C we followed the procedures adopted by the Studies in Economics of Farm Management (Government of India, 1976). According to these studies, Cost A_1 approximates the actual expenditure incurred in kind and cash and it includes the following items. a) hired human labour, b) owned and hired bullock labour, c) machine labour, d) seeds, e) manures and fertilisers, f) plant protection chemicals, g) depreciation on implements, machinery and farm buildings, etc., h) land revenue, cess, water rates etc., and i) interest on working capital. Cost A2 includes Cost A1 plus rental value of leased in land. This applies only for tenant operated farms. Cost B includes Cost A2 plus interest on fixed capital excluding land and rental value of owned land. Cost C includes Cost B plus imputed value of family labour. The total cost of cultivation (i.e., Cost C) includes the values of both the purchased and owned inputs used in agriculture. While the values of purchased inputs were included at their reported prices by the farmers the owned inputs were imputed at the prevailing prices in the village in 1985-86. The details of the important components of total cost of cultivation in Verkadu agriculture are given below.

(1) Owned bullock labour It is imputed at the going wage rates of Rs.13 and Rs.25 per day for a pair of bullocks for

ploughing and transportation respectively. And these wages are paid only for bullocks.

(2) Family labour It is imputed at the prevailing wage rates paid to different categories of agricultural labourers in the village in 1985-86.

(3) Owned seed It is imputed at the market price of Rs.3.5 per kg in the village.

(4) Domestic manure This is imputed at the prevailing price of Rs.10 per cart load of cowdung (weighing around 400 kgs) in the village.

(5) Rental value of owned land It is imputed at the prevailing rental charge of one and a half bags of paddy per acre per crop in 1985-86. This is converted into money terms at the post-harvest price of Rs.130 per bag of 80 kgs.

(6) Interest on owned working and fixed capitals This is imputed at the commercial bank fixed deposit interest rate of 10 per cent per year. Since the duration of the crop is around 6 months in the village only half of this interest amount is taken into account while calculating the per acre total cost of cultivation.

(7) Depreciation on livestock Since the life of livestock, especially the draught animals is taken as 10 years the depreciation on them worked out to 10 per cent of their original value. However, this value is divided by the gross cropped area

in the bullock owning farm so as to obtain the per cropped acre depreciation cost incurred by the farmer in 1985-86.

APPENDIX 3

Methodology Adopted for working out the Distributions of Paddy in Verkadu in 1970-71 and 1985-86

The distributions of paddy relating to 1970-71 and 1985-86 are worked out mainly for land operating resident households in the village. While the distribution of paddy relating to the year 1970-71 is obtained based on the data collected from the purposive sampling enquiry the same relating to the year 1985-86 is obtained based on the data collected from the sampling enquiry. Between 1970-71 and 1985-86 as against the number of land operating resident households remaining more or less the same the total production of paddy had gone up marginally thanks to its improved yield rate over the years. In the following paragraphs the details of paddy distribution between 1970-71 and 1985-86 are given.

(1) <u>Seed requirements of agriculture</u> Due to the continued broadcast cultivation method of paddy and the marginal decline witnessed in the total area cultivated with paddy by the residents the total quantity of paddy used as seed had also declined marginally between 1970-71 and 1985-86. The per acre seed requirement of traditional varieties of paddy remained the same at 35 kgs for over two decades. Multiplying this with the gross cropped area of paddy in the concerned years gave us the total quantity of paddy required for seed purpose.

(2) <u>Consumption</u> While household consumption is met by diverse sources; here we are concerned only with the quantities

of paddy retained for consumption, especially by the land operating resident households. Between 1970-71 and 1985-86 the total quantity of paddy allotted for consumption purposes had gone up by 23.99 per cent, thanks to the increased population of the village. Our purposive and sampling enquiries have revealed that on an average the quantity of paddy retained for consumption by a land operating household had gone up from 8 bags in 1970-71 to 9.79 bags in 1985.86.

(3) Payments to artisanal and service households Though we have collected the data on payments to artisanal and service households relating to 1970-71 and 1985-86 through our purposive and sampling enquiries, respectively, they were cross-checked with the receipient households themselves. Both due to the declining number of households (from 60 in 1970-71 to 42 in 1985-86) purchasing their services and the stagnation in kind wage rates paid the total quantity of paddy paid to them had also declined. The employers paid the artisanal and service households on an average one bag of paddy per household per year during the last 15 years.

(4) Payments to agricultural labourers Due to the increased degree of monetisation of wage payments the total quantity of paddy paid as wages to different categories of agricultural labourers declined substantially 240 bags in 1970-71 to 92.30 bags in 1985-86. In 1970-71 while casual agricultural labourers were paid on an average half a bag of paddy as wages per cropped acre the permanent farm servants were paid each 6 bags of paddy

per annum. There were 10 permanent farm servants in the village in 1970-71, getting a total quantity of 60 bags of paddy per year. In addition, there were also 10 cowherds employed at the annual wage rate of 3 bags of paddy. They were totally paid 30 bags of paddy in 1970-71. On the contrary, in 1985-86, the casual agricultural labourers were paid only 42.30 bags which worked out to a mere 12.13 kgs of paddy per cropped acre. As against 10 permanent farm servants of 1970-71 only 2 permanent farm servants were employed in 1985-86. These two were paid each 12 bags of paddy per year. Further, the number of cowherds employed in the village had also declined from 10 in 1970-71 to a mere 2 in 1985-86. In 1985-86, these two cowherds were paid each 6 bags of paddy per year.

(5) <u>Payments towards land rent</u> These are calculated by multiplying the per acre rent charged per year with the total land leased in during 1970-71 and 1985-86. The rent charged per acre per year had gone up from 2 bags of paddy in 1970-71 to 3 bags of paddy in 1985-86. These rental charges were multiplied with the concerned total leased in areas of 59.85 acres in 1970-71 and 94.77 acres in 1985-86.

(6) <u>Total distribution of paddy</u> It is obtained by adding up the absolute figures relating to the 5 major distributional items mentioned above.

(7) <u>Total marketable surplus</u> This is computed by subtracting the total quantity of paddy distributed from the total production of paddy in 1970-71 and 1985-86.

APPENDIX 4

Procedures Adopted for the Estimations of Agricultural and Non-agricultural Incomes earned in Verkadu in 1985-86

(1) Income from the cultivation of owned land This is estimated by multiplying the per acre net incomes earned from each crop production on Cost C basis with the gross cropped area in the category. Only the net incomes earned on Cost C basis is taken into account because we are estimating separately the incomes earned from self-employment and other owned inputs used in agriculture.

(2) Income from the cultivation of leased in land This is obtained by multiplying the per acre net incomes earned from each crop production with the gross cropped area of the tenant farms.

(3) Rental income earned from the owned land This is imputed at the prevailing rent of one and a half bags of paddy per cropped acre. This is multiplied with the gross cropped area of the owner farms. This is converted into money terms at the prevailing post harvest price of Rs.130 per bag of 80 kgs each.

(4) Rental income earned from the leased out land This is calculated by multiplying the prevailing rental charge of 3 bags of paddy per acre per year with the total extent of land leased out by the category. This figure is converted into money terms at the prevailing post-harvest price of Rs.130 per bag, again by multiplying.

(5) Income from the cultivation of common lands This is obtained by multiplying the per acre net incomes earned from each crop production on Cost C basis with the total area raised with crops in common lands by the respective category of farmers.

(6) Incomes earned from the auctioning of fish and leaves available in ponds Over the years certain categories of farmers have established their usufructus rights on the 4 ponds in the village. The incomes earned from the auctions of fish and leaves available from these ponds are not shared by the other categories of farming households. Hence the relevant column in the table includes only the actual incomes earned from the auctions of fish and leaves by the categories of big, medium and small farmers and the pure tenants.

(7) Incomes earned from the sale or use of palm products Of all the categories of households only the pure tenants have established their usufructus rights over 100 palm trees available in the village. They earned about Rs.100 per tree by way of selling or using the palm products such as leaves, fruits and toddy.

(8) Income earned from self-employment in agriculture This is obtained by multiplying the per acre income earned from the provision of own labour (i.e., the imputed value of family labour calculated in the table on total cost of cultivation) with the gross cropped area of the category.

(9) Income earned from hired labour This is computed by multiplying the sample average household income earned from hired employment with the number of households in each category.

(10) Income earned from owned bullock labour This is obtained by multiplying the per acre imputed value of owned bullock labour used in crop production (shown in table on total cost of cultivation) with the gross cropped area of the category.

(11) Income earned from hiring out bullocks This is computed by multiplying the average sample household income earned from hiring out bullocks with the number of households in each category.

(12) Income earned from the use of owned inputs in agriculture other than land and labour These include mainly the imputed values of owned seed, manures and the interest earnings of owned capital used in crop production. In order to estimate the total value of these inputs we have multiplied the per acre imputed values of these inputs (shown in table on total cost of cultivation) with the gross cropped area of the category.

(13) Agricultural income earned within the village This is a sum of incomes earned from all agricultural sources i.e., incomes from items 1 to 12 mentioned above.

(14) Agricultural income earned outside the village This includes mainly the rental income earned from the leasing out of

10 acres of land owned by the big farmers in the neighbouring villages. They leased out their lands at 6 bags of paddy per acre per year and earned a total quantity of 60 bags of paddy in 1985-86. This is converted into money terms at the prevailing post-harvest price of Rs.130 per bag.

(15) Total agricultural income This includes the agricultural incomes earned both within and outside the village by each of the categories in 1985-86.

(16) Agricultural income earned per household This is obtained by dividing the total agricultural income of the category with the number of households in that category.

(17) Per capita agricultural income This is worked out by dividing the average household agricultural income earned by the category with the average household size of that category.

(18) Estimate of non-agricultural income This is obtained by multiplying the sample average household income earned per year from a particular non-agricultural source with the number of households deriving incomes from that source. The addition of incomes earned by the households from different non-agricultural sources gave us the total non-agricultural incomes earned by each of the categories in 1985-86. The table also gives the separate figures on the non-agricultural incomes earned by the households within and outside the village.

(19) Total non-agricultural income This is a sum of all

non-agricultural incomes earned from all sources by each of the categories both within and outside the village.

(20) Non-agricultural income earned per household This is obtained by dividing the total non-agricultural income of the category with the number of households in that category.

(21) Per capita non-agricultural income This is worked out by dividing the per household total non-agricultural income of the category with the average household size of that category.

APPENDIX 5

A Note on the Procedures Adopted for the Estimations of Borrowing

(1) Estimated number of households in debt This is obtained first by dividing the number of sample households in debt by the number of sample households and the figure is multiplied by the total number of households in the category.

(2) Estimated average total debt amount outstanding per indebted household This is obtained by dividing the total debt amount of the sample households by the number of sample households in debt.

(3) Estimated amounts borrowed for productive and unproductive purposes These are obtained first by dividing the sample households' total debt incurred for a purpose by the number of sample households in debt and the average is multiplied by the estimated number of households in debt in the respective category.

(4) Estimated average productive, unproductive and total debt amounts per household Debt per household by purpose has been computed by dividing the estimated debt amounts borrowed for productive, unproductive purposes and the total by the total number of households in each category.

(5) Per household income-debt ratio This is obtained by dividing the estimated average total income earned per household

in the category by the estimated average total debt incurred per household in the category.

(6) <u>Estimated sources of borrowing</u> These are obtained first by dividing the sample households' total amount borrowed from a particular souce by the number of sample households in debt in each category and then the average is multiplied by the estimated number of households in debt in each category.

APPENDIX 6

Procedures Adopted for the Estimations of Poverty in 1985-86

In the estimations of poverty we have used the household income data rather than the consumption data collected through our sampling enquiry. This is because while the consumption data are very much affected by the seasonality in agriculture the per household annual incomes are not. Further, our computations relate mainly to the head-count ratios of "absolute", "abject" and "relative" poverty prevailing in the village in 1985-86. However, for the purpose of analysis we have solely relied on the calculations of "absolute" poverty.

(1) Poverty-line income The poverty-line income is taken as equivalent to the official poverty line expenditure of Rs.15 per capita, per month at 1960-61 prices. This is corrected for the year 1985-86 by using the Consumer Price Index for Agricultural Labourers (CPIAL) relating to Tamil Nadu. The CPIAL for Tamil Nadu relating to the year 1985-86 stood at 537 points with 1960-61 as the base. Using this index we have obtained the current poverty-line income as Rs.80.55 per capita, per month or Rs.966.60 per capita, per year. While we have used the poverty-line income of Rs.966.60 per capita, per year for the calculations of "absolute" poverty we have taken half of this poverty-line income of Rs.483.30 for the calculations of "abject" poverty prevailing in the village. But the "relative" poverty is calculated based on the per capita annual income earned in each of the villages in 1985-86.

(2) Head-count ratio of poverty It is obtained by counting both the number of sample households and the persons in them falling below a particular poverty-line income. And, the poverty ratios are obtained by dividing the estimated numbers of households and persons living below a particular poverty line-income with the total number of households and population in the village.

(3) Estimates of poverty These are first calculated by dividing the numbers of sample households and persons living in different types (absolute, abject and relative) of poverty with the numbers of sample households and persons, respectively, in the category. Then, these ratios are multiplied with the respective total numbers of households and persons in the category.

(4) Occupational poverty is obtained by dividing the category's estimated number of persons in absolute poverty with the total number of persons in the category. This ratio is multiplied by 100 in order to get the percentage of total category's population living in absolute poverty.

(5) Total poverty It is a sum of estimated numbers of households or persons living in each type of poverty across various categories in the village. Total estimated poverty ratios are obtained by dividing the total estimated numbers of households or persons living in each type of poverty with the total number of households or population in the village in 1985-86.

Notes

1. Sundari (undated), p.99.

2. An extensive survey of 30 villages in Chengalpattu district in 1980 revealed that the Naicker caste households owned the largest percentage of total area in comparison to other castes. See Sundari, <u>ibid</u>., p.233.

3. The Naickers who are also called Vanniars in the state have been agitating through their sangam (Vanniar sangam) for 20 per cent reservations in jobs and educational institutions, especially from the 80s. In addition, they are also demanding a 2 per cent reservation in central government jobs for the Vanniars. See Radhakrishnan (1989a), p.509.

4. For a detailed discussion on modernisation of agriculture in Tamil Nadu, see Kurien (1989).

5. Census of India, 1981.

6. While earners were taken as those in the age-group of 15-59 years the children below 14 years and the old above 60 years were taken as dependents. For justification of this procedure, see Madras Institute of Development Studies (1988), p.56.

7. Madras Institute of Development Studies, <u>Ibid</u>., pp.37, 57.

8. Ramachandran, V.K. (1990) p.247.

9. <u>Ibid</u>., p.247.

10. See Census of India, 1981.

11. According to National Sample Surveys (NSS) between 1971-73 and 1983 while the percentage of male agricultural workers in the total rural workforce declined rather sharply from 79.4 to 66.4 the same in the case of female agricultural workers declined marginally from 85.7 to 79.9. But, these declines were accompanied by corresponding increases in the shares of male and female non-agricultural workers in the total rural workforce of Tamil Nadu between the same years. See Madras Institute of Development Studies (1988), pp.64-65.

12. Vaidyanathan (1986).

13. Chambers and Harriss (1977); Gough (1989) and Epstein (1973).

14. The Gini coefficient is estimated by trapezoidal approximation method, namely

15. Madras Institute of Development Studies (1988), p.143.

16. Radhakrishnan (1988b), p.314. And National Sample Surveys, 26th and 37th rounds.

17. Radhakrishnan, ibid., p.316.

18. Ibid., p.317.

19. Between 1977 and 1982 whereas the total livestock of Chengalpattu district declined from 16,97,738 to 15,83,070 (-6.75 per cent) the same at the taluk level declined from 79,409 to 76,507 (-3.65 per cent). See Government of Tamil Nadu, Livestock Census Register, 1977 and 1982.

20. During the period from 1977 to 1982 while the number of draught animals in Chengalpattu district declined from 4,03,630 to 2,46,213 accounting for -39 per cent, the same at the taluk level declined from 20,836 to 15,782 accounting for -24.26 per cent. See Government of Tamil Nadu, ibid.

21. Athreya (1984 and 1985).

22. The average extent of area ploughed by a pair of bullocks was found to be the same (6 acres) even in some other villages of Tamil Nadu in 1982. See Guhan and Mencher (1982), p.58.

23. Djurfeldt and Lindberg (1976); Beteille (1971) and Nakamura (1982).

24. Government of Tamil Nadu, Tamil Nadu: An Economic Appraisal, 1988, p.64.

25. Mazumdar (1987).

26. These are also the seasons generally followed in the district of Chengalpattu in the 80s. See Sundari (undated), pp.61-62.

27. National Council of Applied Economic Research (1980) and Rakesh Basant (1987).

28. Since the HYV paddy stalks or stems are shorter in comparison to the stalks of traditional varieties of paddy, the grains from the crowns cannot be removed by beating them in a traditional way against the wooden log. Hence the tractor is run in rounds over the HYV paddy heap in order to separate the grains from the crowns. This necessitates the HYV paddy farmers to hire in the trctor services, at least, for an hour per acre. See Harriss, (1977), p.127.

29. Djurfeldt and Lindberg (1976); Guhan and Bharathan (1984); Epstein (1973); Pai (1986) and Jansen (1986).

30. Even over a long period of 1964-65 to 1977-78 the real wage rates paid to male agricultural labourers in Tamil Nadu declined from Rs.1.39 to 1.27. See Madras Institute of Development Studies (1988), p.145. And, for original data sources, see Government of India, Rural Labour Enquiry, 1974-75 and Sarvekshana.

31. The weighted averages are obtained by using the population weights. The population weights are calculated by dividing the number of land operating households in each of the categories by the total number of land operating households in the village. Of course, the total number of land operating household in the village varied depending on the number of categories covered in particular tables. The procedure adopted for the calculation of weighted averages is the multiplication of sample average by the population weight of each category and summing up the same for the whole village.

32. Per acre figures were obtained by dividing the per hectare figures with 2.47. See Government of India, Indian Agriculture in Brief, p.311.

33. First, the per hectare rice yields were converted into per acre rice yields by dividing the former with 2.47. Secondly, the per acre rice figures were converted into per acre paddy figures by using the ratio of 66.66:33.33. For data, see Government of Tamil Nadu, Season and Crop Report, 1985-86.

34. In fact, Nadkarni (1988) based on the analysis of official data argued that at a macro level high productivity of land was achieved only by incurring high costs in the 70s and the 80s.

35. The inverse relationship between farm size and productivity in traditional agriculture is a well established issue in India. See Rao, Hanumantha C.H. (1977) and Singh, Inderjit (1990), p.101.

36. See Government of India, Indian Agriculture in Brief, p.311.

37. See Government of Tamil Nadu, Season And Crop Report, 1985-86.

38. John Harriss (1977) found in a North Arcot district village, viz., Randam that even for the most profit conscious farmers, the cultivation of traditional varieties of paddy remained rational for a variety of reasons during the period of his survey i.e., in the early 70s.

39. For discussions on technical and economic advantages enjoyed by the traditional varieties of paddy over the HYVs, see Dasgupta (1977) and Djurfeldt and Lindberg (1976), pp.106-107.

40. The same phenomenon had also been observed by Harriss (1982) in some of the villages of North Arcot district, Tamil Nadu in 1973-74.

41. Several studies have reported the much higher prices prevailing for the traditional varieties of paddy in comparison to HYV paddy in Chengalpattu and North Arcot districts of Tamil Nadu. See Harriss, ibid., pp.77 and 79; Sivakumar (1978), Mencher (1978), pp.238 and 239 and Chinnappa (1977), p.106.

42. Madras Institute of Development Studies (1988), p.148.

43. Around the same proportion (64 per cent) of total traditional variety paddy production was obtained as marketable surplus even in 1969-70 in one of the villages of Chengalpattu district viz., Thaiyur. See Djurfeldt and Lindberg (1976), pp.150-160.

44. Similar phenomenon was also observed in Haryana villages where non-farm incomes exerted a negative pressure on over all income inequality among the farm households in the 70s and the early 80s. See Paul (1989).

45. Government of Tamil Nadu, Tamil Nadu: An Economic Appraisal, 1988, p.185.

46. Consumer Price Index for Agricultural Labourers (CPIAL) for Tamil Nadu in 1985-86 stood at 537 points with 1960-61 as the base. For data, see Government of India, Indian Labour Journal, 1987.

47. For the objectives of Public Distribution System (PDS), see Madras Institute of Development Studies (1988), p.148; also Annadurai (1988), p.28.

48. For quantities of different items prescribed for distribution by the fair price shops in Tamil Nadu in 1985-86, see Annadurai, ibid.

49. In fact, based on different price data it was argued that the government was subsidising the rice distribution to the extent of two-thirds in the state in 1985-86. See Madras Institute of Development Studies (1988), p.150.

50. Guhan and Mencher (1982).

51. Methodology (the poverty line expenditure of Rs.15 per capita, per month at 1960-61 prices was corrected by the CPIAL relating to Tamil Nadu for the year 1983) adopted for the calculations of absolute, abject and relative poverty prevailing in rural Tamil Nadu in 1983 was the same. The state level calculations were based on the 'Household Consumer Expenditure' data provided by the NSS 38th round. See Subramanian (1986).

Bibliography

1. Athreya, V.B.(1984): Vadamalaipuram: A Resurvey, Working Paper No.50, Madras Institute of Development Studies, Madras.

2. ------------- (1985): Gangaikondan 1916-1984: Change and Stability, Working Paper No.56, Madras Institute of Development Studies, Madras.

3. Annadurai, C. (1988): "The Public Distribution System in Tamil Nadu: An Interim Assessment", Bulletin, Madras Development Seminar Series, Vol.XVIII, No.1, January.

4. Beteille, Andre (1971): Caste, Class and Power--Changing Patterns of Stratification in a Tanjore Village, University of California Press.

5. Chambers, Robert and Harriss, John (1977): "Comparing 12 South Indian Villages: In Search of Practical Theory", in Farmer, B.H. (ed.): Green Revolution? Technology and Change in Rice-growing Areas of Tamil Nadu and Sri Lanka, Macmillan, London.

6. Chinnappa, Nanjamma, B. (1977): "Adoption of the New Technology in North Arcot District", in Farmer, B.H. (ed.): Op.cit.

7. Djurfeldt, Goran and Lindlberg, Staffan (1976): Behind Poverty: The Social Formation in a Tamil Village, Oxford and IBH, New Delhi.

8. Dasgupta, Biplab (1977): The New Agrarian Technology and India, Macmillan.

9. Epstein, Scarlett T. (1973): South India: Yesterday, Today and Tomorrow, Macmillan, London.

10. Gough, Kathleen (1989): Rural Change in Southeast India-1950s to 1980s, Oxford University Press.

11. Guhan, S. and Mencher, Joan P. (1982): Iruvelpattu Revisited, Working Paper No.28, Madras Institute of Development Studies, Madras.

12. Guhan, S. and Bharathan, K. (1984): Dusi: A Resurvey, Working Paper No.52, Madras Institute of Development Studies, Madras.

13. Harriss, John (1977): "The Limitations of HYV Technology in North Arcot District: the View from a Village" in Farmer, B.H.(ed.): Op.cit.

14. ------------- (1982): Capitalism and Peasant Farming: Agrarian Structure and Ideology in Northern Tamil Nadu, Oxford University Press.

15. Jansen, Eric G. (1986): Rural Bangladesh: Competition for Scarce Resources, Norwegian University Press.

16. Kurien, C.T. (1989): Dynamics of Rural Transformation: A Study of Tamil Nadu 1950-1980, Orient Longman, Madras.

17. Madras Institute of Development Studies (1988): Tamilnadu Economy: Performance and Issues, Oxford and IBH Publishing Company, New Delhi.

18. Mencher, Joan P. (1978): Agriculture and Social Structure in Tamil Nadu, Allied Publishers, New Delhi.

19. Mazumdar, Arun (1987): Poverty, Development and Exchange Relations: A Study of Two Birbhum Villages, Radiant Publishers, New Delhi.

20. Nakamura, Hisashi (1982): Studies in Socio-cultural Change in Rural Villages in Tiruchirapalli District, Tamil Nadu, India, No.5, published by the Institute for the Study of Languages and Cultures of Asia and Africa, Tokyo, Japan.

21. Nadkarni, M.V. (1988): "Crisis of Increasing Costs in Agriculture: Is there a Way Out?", Economic and Political Weekly, September 24.

22. Pai, Sudha (1986): Changing Agrarian Relations in U.P.: A Study of the North Eastern Areas, Inter-India Publications, New Delhi.

23. Paul, Satya (1989): "Green Revolution and Income Distribution among Farm Families in Haryana, 1969-70 to 1982-83", Economic and Political Weekly, December 23-30.

24. Radhakrishnan, P. (1989a): "Tamil Nadu Backward Classes", Bulletin, Madras Development Seminar Series, Vol.XIX, No.10, October.

25. ------------ (1989b): "Land Reforms in Tamil Nadu", Bulletin, Madras Development Seminar Series, Vol.XIX, No.7, July.

26. Ramachandran, V.K. (1990): Wage Labour and Unfreedom in Agriculture: An Indian Case Study Clarendon Press - Oxford.

27. Rakesh, Basant (1987): "Agricultural Technology and Employment in India: A survey of Recent Research", Economic and Political Weekly, August.

28. Rao, Hanumantha C.H. (1977): "Agricultural Growth and Rural Poverty: Some Lessons from Past Experience", Economic and Political Weekly Special Number, August, p.1369-1374.

29. Sundari, T.K. (undated): Caste and Agrarian Structure: A Study of Chingleput District, Unpublished Ph.D. Thesis, Jawaharlal Nehru University.

30. Sivakumar, S.S. (1978): "Aspects of Agrarian Economy in Tamil Nadu: A Study of Two Villages", Economic and Political Weekly, Review of Management, Vol.XIII, No.21, May 27.

31. Subramanian, S (1986): Poverty and Inequality in Tamil Nadu, Working Paper No.74, Madras Institute of Development Studies, Madras.

32. Singh, Inderjit (1990): The Great Ascent: The Rural Poor in South Asia, published for the World Bank, The Johns Hopkins University Press, Baltimore and London.

33. Vaidyanathan, A. (1986): Labour Use in Rural India: A Study of Spatial and Temporal Variations, Working Paper No.78, Madras Institute of Development Studies, Madras.